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Inside Dope

By GEORGE F. TAUBENECK

Learn to live and laugh — thus delay your epitaph

Stories of the Week
From Tiny Acorns
Muddy Kitchen Tracks
Durant, Kettering, Frigidaire, Dennedy
From Refrigerators to Appliances
Economic Effects Astounding
'Sumpin's Gotta Be Did'
How About That!
High School Kids and the Vacuum Salesmen
Romance Isn't Dead

Stories of the Week

Late, late at night Bob Price and the writer decided not to go any further on our motor trip. Near the Pennsylvania-Ohio border we asked a filling station attendant to give us the name of the best hotel in that sleepy village.

"I hate to tell you," he shook his head sadly. "When you look it over you'll call me a liar."

Some of us didn't realize that "Old Pokerface" (Sen. Kefauver, Democratic Vice Presidential nominee in 1956) had such a sense of humor.

He received an invitation to the 1957 inauguration. An accompanying card from the inaugural committee chairman told Kefauver that the invitation "comes to you in appreciation of your efforts in the campaign to re-elect President Dwight D. Eisenhower and Vice President Richard M. Nixon."

Accepting, Kefauver advised his inviter: "I am glad to know that my efforts in the recent campaign did not go unnoted or unappreciated by the inaugural committee. As you may know, I campaigned in 38 states and President Eisenhower and Vice President Nixon failed to carry only one of them."

From Tiny Acorns

An iceman's muddy feet. . . .

A temperamental engineer who couldn't stand bosses. . . .

An irate printer. . . .

Two high school physics students. . . .

An impatient capitalist. . . .

From such odd and obscure beginnings came one of the mightiest economic forces ever to reshape the face and habits of America.

That mighty force—the refrigeration and air conditioning industry—grew largely out of the screwball behavior of a few individuals in the second decade of this century.

And, with the exception

(Concluded on Page 27, Col. 1)

Frigidaire Cuts On Commercial Not to Affect Air Conditioning

DAYTON—Frigidaire Div. of General Motors is "de-emphasizing" production of some phases of its line of commercial refrigeration products, and will concentrate more heavily on products for the home, a division official stated last week.

With respect to air conditioning, the official said that Frigidaire is "changing certain lines, but not relinquishing its efforts so far as commercial, residential, or room air conditioning are concerned."

Production of some air conditioning items is being increased, it was indicated.

A cutback in the production of commercial refrigeration condensing units was indicated. Other commercial refrigeration equipment manufactured by Frigidaire includes reach-in refrigerators, ice cream cabinets, ice makers, and water coolers.

Many 'Firsts' Awaiting ASHAE Show Visitors

CHICAGO—Like an ever-expanding glacier, the air conditioning industry is pushing out in all directions to new horizons.

How far it has pushed and the directions in which it is moving will be amply displayed in the 13th International Heating & Air Conditioning Exposition opening today (Feb. 25) in the International Amphitheatre here.

Visitors to the five-day extravaganza of the industry have the opportunity to see first hand the offerings of 500 manufacturers.

They can walk up and examine a 60-ton packaged air conditioner, poke around a residential hot water boiler without any tubes, convince themselves about "the first" interchange-

(Concluded on Page 81, Col. 1)

Air Conditioning, Champion Growth Industry, Looks to Biggest Year In '57

CHICAGO—As the air conditioning industry puts its 1957 wares on view for the field at the 13th International Heating & Air Conditioning Exposition, opening Feb. 25 at the International Amphitheatre here, it can point to one of the most remarkable growth records of any industry during the past five years, and with many markets for its products virtually in their infancy.

Here's the industry's record on mechanically refrigerated comfort cooling equipment—in less than five years:

Room Air Conditioners: Estimated sales of 1,625,000 units in 1956, as contrasted with 365,000 units in 1952.

Central Residential Air Conditioners: 185,000 systems sold in 1956, compared with 10,500 in 1952.

Other Packaged Air Conditioners: 125,000 units in 1956, compared with 67,000 in 1952.

Applied or Built-Up Systems: Estimated 1956 dollar value of $1,048,000,000, contrasted with probably less than a third of that figure in 1952.

Automobile Air Conditioners: 279,000 units sold in 1956, contrasted to virtually none in 1952, and only 40,000 in 1953.

What about the 1957 market? Room air conditioning, with the biggest year in history behind it, achieved that record despite the coldest July and August in many years. With any kind of a break in the weather, the record should be at least equalled, and very probably surpassed.

The upward trend in central residential cooling systems, sales of which have increased each year since such systems were first introduced should continue upward. Even a downswing in new home construction shouldn't have too great an effect, because in past years an increasingly greater percentage of installations has been in existing homes.

Also, the percentage of new homes with cooling has been increasing each year (to about one out of 11 in 1956) and should continue to improve.

Commercial packaged units, because they have been on the market and more generally accepted for a longer period of time, tended to reach something of a plateau in sales a couple of years ago, but have edged up in the past couple of years.

A replacement market is beginning to show up in this category. A survey of installations in a sizable city in the northeastern part of the country revealed that about 15% of the installations were 10 years or older (which meant most of them would be pre-war). A

(Concluded on Page 2, Col. 1)

BEHIND PAGE ONE . . .

New Orleans Cooling Market
Commercial Field Nears Replacement Market; Residential Sales Picking Up 14
Converting Gravity Systems
Old Ductwork System Is Used In Year-Round Residential Installations 18
1960 Predictions
Texas Utility Sees 2,250,000 Room Units and 280,000 Central, Packaged Home Systems 25
'One-Call Close' Plan
Salesmen Prepared to Figure Equipment Needed, Costs, and Monthly Payments on First Call 30
Service Charges
N. J. Survey Shows Range of Charges For Principal Service Operations 34
Hospital Air Conditioning
Medical, Hospital Authorities Recognize Therapeutic Value; Shift from 1937 Attitude 36
Direct Mail Advertising
Get the Right List, Use It Correctly, Manufacturer Advises Distributors 38
Tower Cuts Water Costs 96% 41
Can Air Conditioning Contractor Make Any Money?
Fort Worth Seminar Compares Contractors Overhead, Finds Need for Including All Items 44
6 Ideas on Handling Credit 50
Remote Air-Cooled Condensers
How To Assure Proper Head Pressures At All Conditions, Discussed at Forum 58
Cooling School for Heating Men
Detroit Week-Long School Uses Shop Work with Professional Instructor 60
Heat Pump Tests
Utility Finds Average Performance Coefficient About 3-1 In Ground-to-Ground Unit 64
How To Clean Cooling Towers, Icemakers 66
Residential Air Conditioning Costs
Studies Find Operating Costs No Great Concern of Users or Prospects 72

Sheet Metal Union Dispute Will Get Decision from 'Top'

AKRON, Ohio — A special committee of the AFL-CIO executive council is expected to make a decision this week that may bring closer an end to union jurisdictional disputes that frequently interrupt large air conditioning installations.

The special committee, headed by George Meany, president of the AFL-CIO, has undertaken to decide a jurisdictional problem that has plagued the Burt Co. here, a manufacturer of large ventilating equipment, since 1945.

In that year, Burt's employes named the United Steel Workers (CIO) as their bargaining agent. The Sheet Metal Workers International Association (AFL), which represents the

(Concluded on Back Page, Col. 1)

Hughes-Keenan To Merge with UsAirco

PHILADELPHIA — The boards of directors of United States Air Conditioning Corp. here and Hughes-Keenan Corp., Delaware, Ohio, announced through their presidents, David E. Feinberg and G. W. Way, respectively, their agreement to merge subject to the approval of the stockholders of both companies.

"Details will be made known to the stockholders and the public in the ordinary course," the announcement said.

(Concluded on Back Page, Col. 5)

House Ups FNMA Housing Credit by $500 Million

WASHINGTON, D. C.—The House last week passed a bill to make more housing credit available through the Federal National Mortgage Association.

No objection was voiced to the "stop-gap" bill to increase by $500 million the amount the agency can borrow from the Treasury and the public to conduct its mortgage-buying activities. A similar bill has been reported out by a Senate Banking subcommittee.

The FNMA buys Government-insured mortgages from private lenders when they want cash for new lending activity. Agency officials have told Congress that the association will run out of money early next month for its purchase program unless it gets more borrowing authority.

Industry Grows--

(Concluded from Page 1, Col. 5)

similar survey in a southwestern city of about the same population revealed that about 30% were 10 years old or older.

On the market for built-up systems, it is perhaps sufficient to say that no construction of any commercial building or multi-dwelling establishment of any kind is contemplated today without consideration being given to the installation of air conditioning (this is a factor that helps the commercial package field also). And when the industrial market cracks, the potential could well be doubled.

CRDA Elects Ruf

JERSEY CITY, N. J.—James Ruf, sales manager of Engineering & Refrigeration, Inc., was elected president of the Commercial Refrigerator Distributing Association.

Mitchell, Cory Sue To Recover Excise Taxes

CHICAGO—Cory Corp. and its division Mitchell Mfg. Co. filed suits in Federal court here seeking recovery of manufacturer's excise taxes on air conditioning units.

They charge the taxes were erroneously and illegally assessed and collected by the district director of internal revenue.

Pursuant to a 1954 ruling by the commissioner of internal revenue, plaintiffs state, self-contained window type air conditioning units with motor drive compressors having a total of 1 hp. or more are not subject to tax under the appropriate section on the internal revenue code.

Cory seeks $14 per unit, plus interest, and Mitchell asks $15, plus interest.

Red & White Corp. To Advise Vending Machines for Stores

CHICAGO — Red & White Corp., which has been studying vending machines for some time, will recommend at its May convention that its members begin vendor operations, it was reported here.

Ray O. Harb, director of field operations and store development, said that Red & White "was enthusiastic" about the possibilities and that a unit consisting of Rowe and Stallworth vending machines will be displayed at the meeting.

"It was anticipated," he added, "that orders would be placed at the convention for this machine."

He also said that prior to the meeting two supermarkets will test the machine.

Boon To Air Conditioning?

Atomic Scientist Urges Immediate Start On Underground Shelters, Factories

WASHINGTON, D. C.—Recommendations for the construction of civilian bomb shelters, and for putting part of U. S. industry underground, have been brought before a House subcommittee considering a bill to establish a civil defense department, and to give its head Cabinet status.

(If bomb shelters were constructed, they would have to be at least ventilated, and very likely air conditioned, and underground industrial plants would require air conditioning.)

Dr. Edward Teller, atomic scientist who has been called the "father" of the hydrogen bomb, urged an immediate start on a multi-billion dollar program of air raid shelters, in his testimony before the committee.

Dr. Teller warned that the U. S. would be inviting an atomic attack unless it undertook a program for civilian-defense shelters. As possible enemies acquire the ability to deliver an atomic attack, the best way to prevent such an attack is to be able to absorb and recover from the devastation it would entail, he declared.

In the event of an atomic attack on this country, Dr. Teller said that many persons would have to go underground for a week or more to escape radioactive fall-out. He estimated that the shelters could be built in five years at a cost of $7,500,000,000.

Val Peterson, Civil Defense Administrator, questioned the wisdom of the shelter program "because we would have to build them for 160 million people." However, he estimated that an all-out attack with thermonuclear weapons might bring casualties to 40 to 45% of the total population.

The Civilian Defense chief did urge a long-range program of dispersing some of the country's industries.

"We should do this with plant expansions," he said, "because we couldn't pull out our present plants and move them. We should put a part of our industry underground. We must use our mountains and use our rock."

Whirlpool Stockholders Asked To Vote on Merger With Birtman March 29

ST. JOSEPH, Mich. — The board of directors of Whirlpool-Seeger Corp. has called a special meeting of stockholders to be held March 29 in Chicago for the purpose of voting on a proposed merger of Birtman Electric Co., Chicago, into Whirlpool-Seeger, it was announced by Walter G. Seeger, chairman of the board.

The scheduled effective date for the merger is April 1, 1957, in connection with which Birtman stock would be converted into common stock of Whirlpool-Seeger in the ratio of one share of Birtman stock for five-sevenths of one share of Whirlpool-Seeger common stock.

The principal business of Birtman Electric is the manufacture of vacuum cleaners. Whirlpool-Seeger Corp. manufactures a broad line of other household appliances.

Directors of Whirlpool-Seeger also declared the regular quarterly cash dividends of 85 cents per share on the $80 par value 4¼% cumulative convertible preferred stock and 35 cents per share on the common stock outstanding. Both dividends are payable March 11 to stock of record at the close of business March 1.

Incorporate Firm

AUSTIN, Texas — All-Year Air Conditioning has recently been incorporated in Houston, records in the Secretary of State's office here show.

let's talk cents

When you buy a low temperature system and check the TOTAL costs of both the low and high side, you'll be pleased to find that

KRAMER (L) THERMOBANK

COSTS NO MORE...

and you get so much more

ONLY.. *THERMOBANK* provides positive reevaporator with ample heat supply.

ONLY.. *THERMOBANK* completely protects the compressor — no liquid refrigerant to the compressor, no oil foaming, no motor overload.

ONLY.. *THERMOBANK* makes possible the use of the "Low Temperature" compressor without overloading during defrost, making possible serious reductions in first cost as well as significant operating economies.

WRITE FOR MANUAL TV-320

KRAMER TRENTON CO. • Trenton 5, N.J.

43 YEARS OF CONTINUOUS ACHIEVEMENT IN HEAT TRANSFER

For more information about products advertised on this page use Information Center, page 54.

The "hottest" products are cooled by Copeland

Find the manufacturer of a famous line of air-conditioning or refrigeration products, and it's a good bet you've found another Copeland customer. Companies with a reputation for quality and service at stake, can't take chances . . . for the heart of their products, they demand motor compressors and condensing units by Copeland.

Since the industry was in swaddling clothes, Copeland has pioneered perfection . . . researching its needs, testing in laboratory and in the field, and building a progressively higher standard of performance and durability into every unit. You'll make and keep warm friends when Copeland does your cooling.

See us at Booths 1220 and 1224
International Heating and Air Conditioning Exposition, International Amphitheater, Chicago, February 25—March 1

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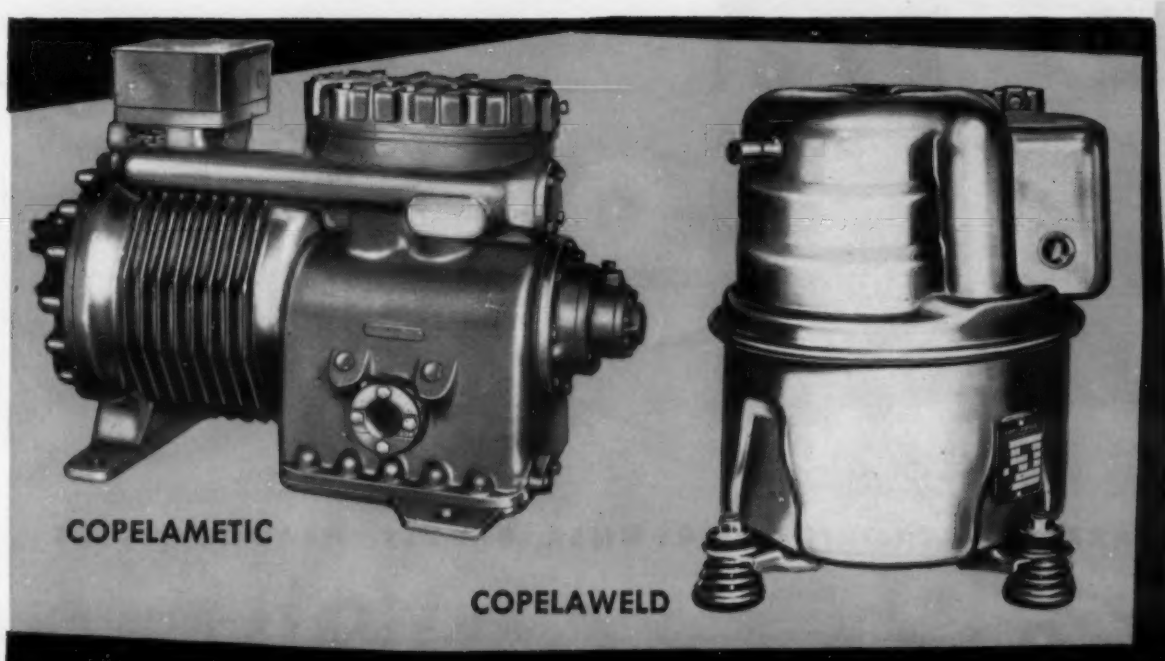

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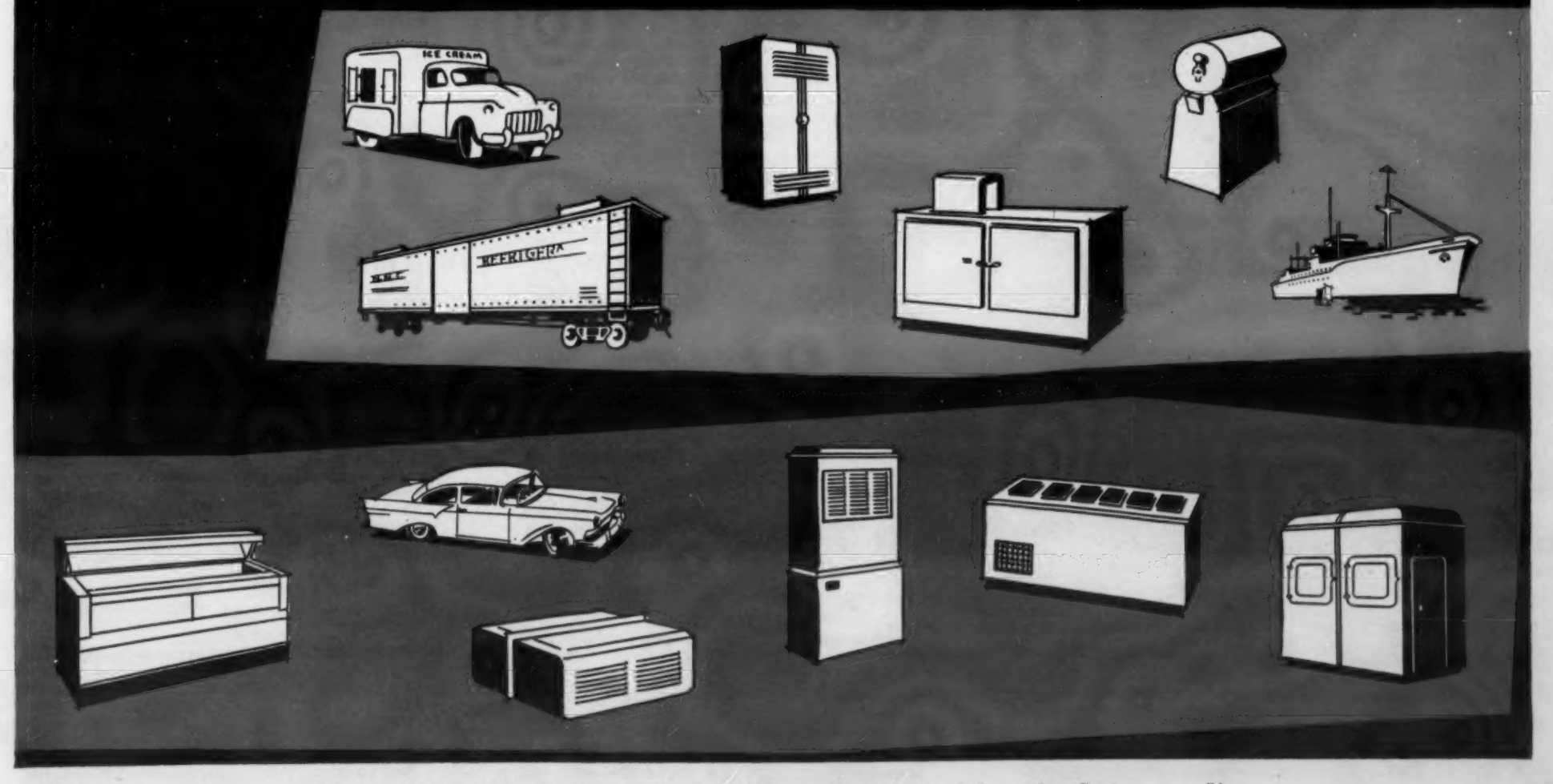
You can get to direct-drive Copelametic units effortlessly . . . in a jiffy. No belts or seals, no manual oiling. 90% of service costs eliminated. Models for all applications—air and water-cooled—from ⅓ through 3 h.p. Self-contained units ⅓ and ½ h.p. Suction-cooled also available.

COPELAWELD

Hermetics — Sturdy, Silent, Safe

The leaders' choice for refrigeration and air-conditioning products. Vibration-free; delivers high capacities at lowest current output. Freon-12 and Freon-22 models; sizes ½ H.P. through 1½ H.P.



For more information about products advertised on this page use Information Center, page 54.

CHECK THIS LIST FOR YOUR NEAREST AUTHORIZED BRUNNER SUPPLY HEADQUARTERS

ALABAMA
BIRMINGHAM.....Budlock Refrigeration Supply Co.
MOBILE.....Refrigeration Supply Co.
MONTGOMERY.....Nolin-McInnis Company

ARKANSAS
FORT SMITH.....Central Supply Company
LITTLE ROCK..Refrigeration & Electrical Supply Co.

ARIZONA
PHOENIX.....Authorized Supply Company
PHOENIX.....State Equipment & Supply Co., Inc.

CALIFORNIA
BAKERSFIELD.....Refrigeration Supplies Distributor
EAST LOS ANGELES.....Arrow-Risco, Inc.
EL CENTRO.....Allied Refrigeration Suppliers, Inc.
FRESNO.....California Refrigerator Company
GLENDALE.....Arrow-Risco, Inc.
LONG BEACH...L. B. Marsh Allied Refrigeration Co.
LOS ANGELES.....Arrow-Risco, Inc.
LOS ANGELES.....Brea Supply Company
LOS ANGELES.....Thermal Products, Inc.
OAKLAND.....California Refrigerator Company
SACRAMENTO..Acme Supply & Equipment Company
SAN BERNARDINO.....L. B. Marsh Allied Refrig. Co.
SAN DIEGO.....Allied Refrigeration Suppliers, Inc.
SAN FRANCISCO....California Refrigerator Company
SAN FRANCISCO.....Refrig. & Power Specialties Co.
SAN GABRIEL.....Arrow-Risco, Inc.
STOCKTON....Refrigerating & Power Specialties Co.

COLORADO
DENVER.....Thermo Supply Company

CONNECTICUT
HARTFORD.....N. W. Day Supply Company
HARTFORD.....Joseph Simons Company
NEW HAVEN.....Resco, Inc.

DISTRICT OF COLUMBIA
WASHINGTON.....Refrigeration Supply Co., Inc.

FLORIDA
JACKSONVILLE.....Bowen Refrigeration Supplies Inc.
JACKSONVILLE.....Refrigeration Supply Company
MIAMI.....Bowen Refrigeration Supply, Inc.
ORLANDO.....R & R Supply Company, Inc.
PENSACOLA.....Cooling & Heating Supplies
TAMPA.....Hajoca Corporation
TAMPA.....Leo S. Bosarge Co. of Tampa, Inc.

GEORGIA
ATLANTA.....Leo S. Bosarge Company, Inc.
ATLANTA.....Bowen Refrigeration Supplies, Inc.
COLUMBUS.....Hajoca Corporation
MACON.....Graves Refrigeration, Inc.
SAVANNAH.....Savannah Refrigeration Supply Co.

IDAHO
BOISE.....Commercial Distributing Company

ILLINOIS
CHICAGO.....Service Parts Company
DECATUR.....Potter Supply Company
EAST ST. LOUIS.....Illinois Electric Works, Inc.
PEORIA.....Polar Supply Corporation
ROCKFORD.....Park Distributors, Inc.
SPRINGFIELD.....Spangler, R. H. Company, Inc.

INDIANA
EVANSVILLE.....Budlock Refrigeration Supply Co.
EVANSVILLE...Ohio Valley Hardware Company, Inc.
INDIANAPOLIS.....Duncan Supply Company
MISHAWAKA.....Valley Equipment Company
RICHMOND.....Gennett & Sons, Inc.
TERRE HAUTE.....Budlock Refrigeration Supply Co.

IOWA
CEDAR RAPIDS.....Thermal Company, Inc.
DES MOINES.....Thermal Company, Inc.
DAVENPORT.....White Refrigeration Supply, Inc.

KANSAS
TOPEKA.....Refrigeration Equipment Company
WICHITA.....Refrigeration Equipment Company

KENTUCKY
LEXINGTON.....Brock-McVey Company
LOUISVILLE.....Mill Industrial Supply, Inc.

LOUISIANA
ALEXANDRIA...The American Supply Company, Inc.
BATON ROUGE.....Acme Refrigeration
LAFAYETTE.....Cooling & Heating Wholesalers
LAKE CHARLES.....Temtrol Supply, Inc.
MONROE.....Thermal Supply
NEW ORLEANS.....Nola Sales Company, Inc.
SHREVEPORT...Standard Brass & Manufacturing Co.

MAINE
PORTLAND.....A. E. Borden Company, Inc.
PORTLAND.....Joseph Simons Company

MARYLAND
BALTIMORE.....Roche & Hull, Inc.
SALISBURY.....Roche & Hull, Inc.

MASSACHUSETTS
BOSTON.....A. E. Borden Company, Inc.
SPRINGFIELD.....C. P. Payson Company, Inc.

MICHIGAN
ALPENA.....J. Geo. Fischer & Sons, Inc.
DETROIT.....J. Geo. Fischer & Sons, Inc.
DETROIT.....Young Supply Company
GRAND RAPIDS.....Harris Supply Company
JACKSON.....J. Geo. Fischer & Sons, Inc.
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LANSING.....Harris Supply Company
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MINNEAPOLIS.....Thermal Company, Inc.
ST. PAUL.....Thermal Company, Inc.

MISSISSIPPI
JACKSON.....Paine Supply Company
MERIDIAN.....Motor Supply Company, Inc.

MISSOURI
KANSAS CITY....Refrigeration Equipment Company
ST. LOUIS.....Mechanical Supply Company
ST. LOUIS.....R. H. Spangler & Company, Inc.
SPRINGFIELD.....John A. Rhodes Company

NEBRASKA
LINCOLN.....Wickham Supply Company, Inc.
OMAHA.....White Refrigeration Supply, Inc.

NEVADA
LAS VEGAS.....L. B. Marsh Allied Refrigeration
RENO.....Acme Supply & Equipment Company

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AVON-BY-THE-SEA.....Wallwork Brothers, Inc.
NEWARK.....Tesco Distributors
NEWARK.....Wallwork Brothers, Inc.
NEW BRUNSWICK.....Tesco Distributors
OCEAN GROVE.....Tesco Distributors
TRENTON.....Jaegers Sales & Service

NEW MEXICO
ALBUQUERQUE.....Airco Supply Company

NEW YORK
ALBANY.....R. D. Marshall & Company, Inc.
BROOKLYN.....Excel Refrigeration Supplies, Inc.
BUFFALO.....W. A. Case & Son Manufacturing Co.
BUFFALO.....Jordan Supply Company
ELMIRA.....Brady Supply Company
MOUNT VERNON.....Eastern Supply Company
NEW YORK.....Aetna Supply Company
NEW YORK.....Albert Hofeld, Inc.

FOR FAST DELIVERY OF BRUNNER AIR CONDITIONING AND REFRIGERATION CONDENSING UNITS OR PARTS

186 Brunner authorized supply headquarters . . . coast-to-coast

BRUNNER SINCE 1906

WHOLESALER

Every Brunner Wholesaler listed below maintains an authorized supply headquarters for Brunner units and parts. No matter where you are, there's a nearby Brunner Wholesaler who can furnish Brunner Refrigeration and Air Conditioning Condensing units or parts on short notice.

Here's the fastest, most complete distribution service in the industry. Delivery comes from your wholesaler. No long wait for units or parts to come from the factory.

All warranty details are handled by your wholesaler. He's equipped to give you or your customer prompt warranty service, without red tape.

Brunnerize for dependable refrigeration and air conditioning distribution service.

Brunner Manufacturing Company, Utica, New York
The Brunner Company, Gainesville, Georgia
In Canada: Brunner Corp. (Canada) Ltd., Toronto, Ontario

NEW YORK.....Reese & Long Refrig. Products, Inc.
NEW YORK....Paramount Electric Supply Company
ROCHESTER.....Ontario Metal Supply, Inc.
SYRACUSE.....Empire Refrigeration Supply Co., Inc.
SYRACUSE....W. A. Case & Son Manufacturing Co.
UTICA.....Vaeth Electric Company

NORTH CAROLINA
ASHEVILLE.....Hajoca Corporation
CHARLOTTE.....Bowen Refrigeration Supplies
CHARLOTTE.....Henry V. Dick & Company
DURHAM.....Hasco, Inc.
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RALEIGH.....Noland Company, Inc.
RALEIGH.....Henry V. Dick & Company, Inc.
WILMINGTON.....Henry V. Dick & Co.
WILSON.....Noland Company, Inc.
WINSTON-SALEM.....Hasco, Inc.

OHIO
AKRON.....Davey Sales Company
CINCINNATI.....Mason Supply Company
CINCINNATI....Mutual Manufacturing & Supply Co.
CLEVELAND..Cleveland Hermetic & Supply Co., Inc.
COLUMBUS.....Mason Supply Company

OKLAHOMA
OKLAHOMA CITY.....Jones-Newby Supply Company
OKLAHOMA CITY.....M & V Supply Company
TULSA.....Jones-Newby Supply Company

OREGON
PORTLAND.....Refrigerating & Power Specialties

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ALLENTOWN.....Larson Supply Company
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ERIE.....Erie Refrigeration Supplies
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PROVIDENCE.....A. E. Borden Company, Inc.
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COLUMBIA.....H. V. Dick & Company
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DALLAS.....Barbeck Refrig. Supply Company, Inc.
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EL PASO..M & M Refrigeration & Electrical Supply
FORT WORTH.....Texas Refrigeration Supply Co.
HARLINGEN.....United Supply Company
HOUSTON.....Johnson Supply Company
HOUSTON.....Lingo Company, Inc.
HOUSTON.....Standard Brass & Manufacturing Co.
LUBBOCK.....R & R Refrigeration Corporation
SAN ANGELO.....Central Electric Company
SAN ANTONIO.....United Supply Company
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TYLER.....Amstan Supply Division
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NEWPORT NEWS.....Noland Company, Inc.
NORFOLK.....Noland Company, Inc.
NORFOLK.....Refrigeration Suppliers, Inc.
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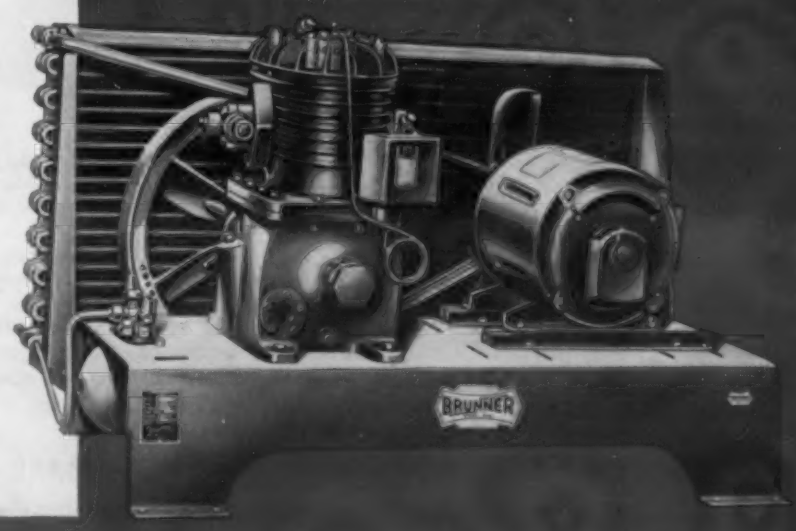
MILWAUKEE.....Thermal Company, Inc.

Brunner-Metic semi-hermetic condensing units for every commercial refrigeration application . . . from ¼ H.P. through 3 H.P.

A complete line of Open-Type Condensing Units . . . full range of types and sizes . . . from ¼ H.P. through 100 H.P. Brunner makes it easy to choose the right unit for every refrigeration and air conditioning job.



Copper Prices Cut Another 3 Cents by Producers

NEW YORK CITY—Continuing their toboggan slide, copper prices were cut another two cents a pound by three major producers, it was reported here this week.

Custom smelters dropped their price to 31 cents, it was added.

Phelps Dodge Corp., No. 2 producer, cut the price of its copper to 32 cents a pound. This is now a cent above the custom smelter quotation. Kennecott Copper Corp. and Anaconda Co. quickly followed Phelps Dodge's move.

This new 31-cent quotation is 14 cents below the 46-cent high established by producers just a year ago and is the lowest since Jan. 27, 1955 when the price moved up from 30 to 33 cents a pound. The 30-cent price had held since March 31, 1953, it was noted.

Consumers said that while the latest price action "is realistic," it still does not correct "the basic fault of over-production." It still leaves "some uncertainty among our customers as to price stability of the metal," one maker of copper products disclosed.

Glen Alden Group Opposes Acquisition Of Maremont Firm

WILKES-BARRE, Pa. — A stockholder committee is reported opposing Glen Alden Corp.'s proposal to acquire Maremont Automotive Products, Inc., Chicago.

Action on the plan, already opposed by the president and the chairman of Glen Alden, ran into further opposition within the company—from the Mathes Co., Fort Worth, Texas maker of air conditioners that GA acquired in 1955.

A group that called itself the Glen Alden Stockholders Committee sent out a letter asking that stockholders of the diversified hard coal producer "vote against this purchase" of Maremont.

The letter said the committee "wonders, after reading the proposed contracts which would be entered into between GA and Maremont, whether GA is acquiring Maremont" or just the reverse.

Glen Alden directors voted 4-to-3 last week to submit the acquisition plan to a stockholder meeting March 12.

In Fort Worth, Charles Mathes, vice president of Mathes, stated the subsidiary concern declined to be identified with the stockholder committee but "definitely opposes the proposed acquisition."

Among objections said to be raised to the plan for acquiring Maremont was a reported plan to add five members, all representing Maremont, to GA's present seven-man board. Another was a reported provision to make available to Maremont stockholders some 250,000 shares of GA stock at $10 a share. The stock has been selling at around $12, it was noted.

In a sharply-worded three-page letter to shareholders Gilbert S. McClintock, chairman, and Francis O. Case, president, termed the proposed purchase "improvident" and urged stockholders to vote against it.

"By taking Maremont under its "tax shelter," Glen Alden "would most likely pay Federal taxes in 1958," they said, in part. "Whereas as we are now constituted, we should be able to complete the payment for the Mathes Co. acquisition before Federal taxes would accrue against it."

McClintock and Case stated that "Glen Alden has had a difficult time since 1950" and has paid off large bank loans, improved properties, thereby reducing costs, and diversified by acquisition of two companies.

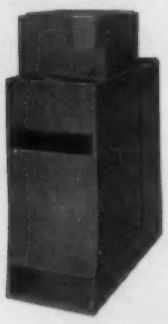
They added Ward LaFrance Truck Corp., acquired early last year, is now operating profitably and Mathes Co. has trebled its volume since 1954, the year prior to its purchase by Glen Alden. "At this time," the executives noted, "there is every reason to believe Mathes will continue to earn $3 million a year and more."

Invitation
You are cordially invited to visit the FRASER-JOHNSTON display in Booths N 226 — 228, Heating and Air Conditioning Show.
FEBRUARY 25 — MARCH 1
Chicago

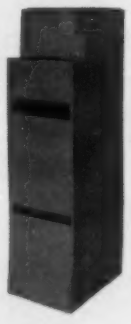
THE BEST ALL-YEAR AIR-CONDITIONING FURNACE ON THE MARKET

Fraser & Johnston, one of the largest gas furnace manufacturers in the West, offers you the most advanced line of air conditioning gas furnaces on the market—**die pressed — precision built — completely welded.** All Fraser-Johnston gas furnaces are AGA approved.

The **Fraser & Johnston** line includes basement type, closet type, horizontal and gravity furnaces, as well as floor furnaces. Scientifically designed evaporators and condensing units are easily combined for 100% air conditioning. Only highest quality controls are included in the line.

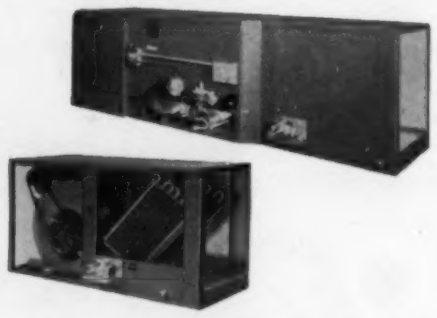


Model LJ (belt drive) and evaporator for basement installation. Nine sizes from 70,000 to 200,000 BTU/Hr. Input. **Model LJD** (direct drive) sizes 70, 75, 80,000 BTU/Hr. Input.



Model CJ (belt drive) and evaporator for limited space installation. Ten sizes from 70,000 to 200,000 BTU/Hr. Input. **Model CJD** (direct drive) sizes 65,000 to 120,000 BTU/Hr. Input.

Model RJ (belt drive) furnace and evaporator for counterflow or perimeter systems. Ten sizes from 70,000 to 200,000 BTU/Hr. Input. **Model RJD** (direct drive) sizes 70,000 to 120,000 BTU/Hr. Input.



Upper, **Model HN** (belt drive) furnace and evaporator for horizontal application. Seven horizontal sizes available from 65,000 to 140,000 BTU/Hr. Input. **Model HD** (direct drive) sizes 70,000 to 100,000 BTU/Hr. Input.

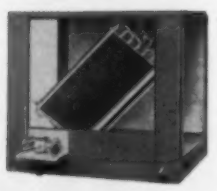
Lower, **Model HB** Air-handling unit to be installed independently of the heating system. 2, 3, 4 and 5 ton capacity.

AIR CONDITIONING EVAPORATORS

These are the finest cooling and dehumidifying coils in the industry designed especially for home air conditioning systems. Advanced design eliminates humidity build-up on the off cycle. All moisture removed from the air is immediately drained from airstream. Engineered for simple installation at lowest labor cost.

C Series. Companion to furnace Models CJ and LJ — sizes 90 to 200.

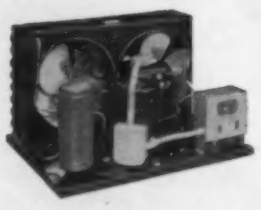
R Series. Companion to furnace Model RJ — sizes 90 to 200.



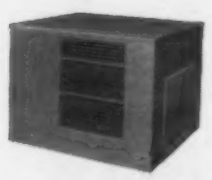
H Series. Companion to furnace Model HN — sizes 80 to 150.

CONDENSING UNITS

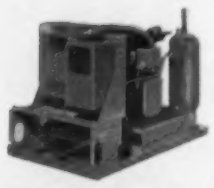
Fraser & Johnston offers both air-cooled and water-cooled Condensing Units. Air-cooled units are available with propeller type fan and with centrifugal type fan. These modern Condensing Units will operate under extreme temperature conditions, when properly applied and installed.



The Model J Series in 2 and 3 h.p. uses the popular propeller type fan for cooling the condenser.

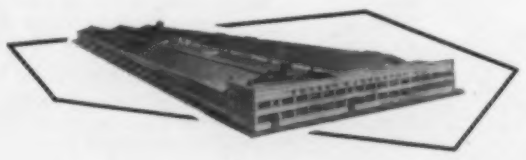


The Model A Series, with metal, weatherproof enclosure, as shown, in 2, 3 and 5 h.p., uses the extremely quiet centrifugal fan.



The Model W Series, shown unenclosed, uses water for cooling the condenser and is not affected by extreme air temperature conditions.

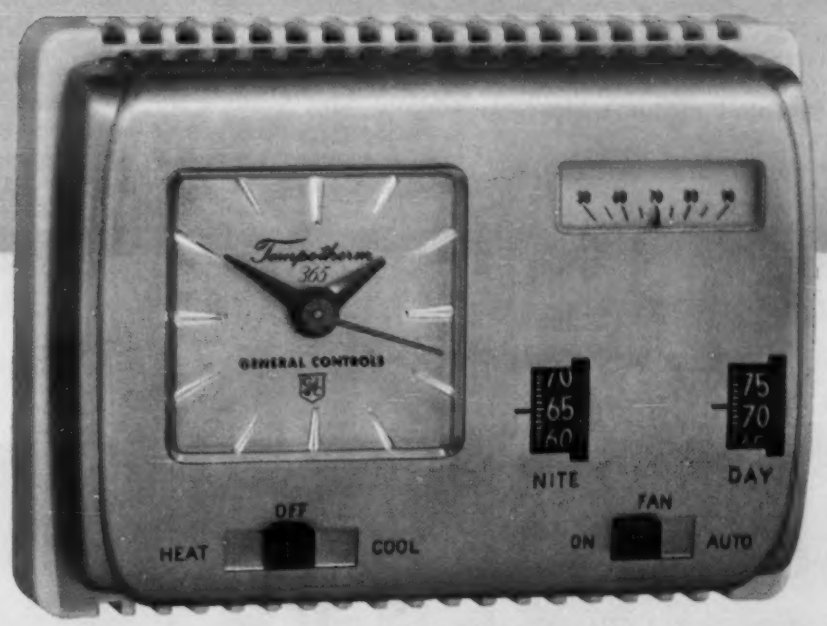
Fraser & Johnston Company, manufacturers of Biltwel, Toridaire and Fraser-Johnston furnaces for more than a quarter of a century, sells only through the legitimate heating and air conditioning distributors. Some territories open. For complete specifications, engineering data, and prices, write to:



FRASER & JOHNSTON CO. 1900 - 17TH STREET, SAN FRANCISCO, CALIFORNIA

For more information about products advertised on this page use Information Center, page 54.

FOR YEAR 'ROUND AIR CONDITIONING . . .



THE NEW ADVANCED DESIGN

Tempotherm 365

General Controls thinks you will agree the new Tempotherm 365 is the finest temperature guardian ever developed for year 'round control of both heating and cooling. For the first time, automatic clock control of night setback and morning pickup for heating is combined with **the identical advantages for cooling.** Now, automatically lowered night temperatures permit better humidity control and help to offset the load of maximum daytime temperatures.

The Tempotherm 365 is engineered to develop the full potential of modern day air conditioning installations. Its beauty and workmanship will delight the homeowner...and its clock-controlled operation brings satisfaction 365 days a year. Our field organization is prepared to demonstrate the advanced design and effectiveness of this new temperature control instrument.

Five Plants:
Glendale, California
Burbank, California
Iron Mountain, Michigan
Skokie, Illinois
Guelph, Canada

GENERAL CONTROLS

America's Finest Automatic Controls for Home, Industry, and the Military

40 Factory Branch Offices Serving the United States and Canada

For more information about products advertised on this page use Information Center, page 54.

Virgil P. Warren Dies; Founded Warren Co., Was Head of Larkin Coils

ATLANTA — "Commodore" Virgil P. Warren, founder and chairman of the board of the Warren Co., commercial refrigerator manufacturer here, died Feb. 19 at the age of 75.

Warren started in the refrigeration business back in 1903 and was active in developing and promoting such industry advances as the dry expansion cross finned coil, the mechanical defroster, and the mechanical dehydrator.

Joining the Shannen Refrigerator Works here in 1903, he reorganized that firm into the Warren Co. in 1922. He was also an active owner of Larkin Coils, Inc. and served as president of that firm for a number of years.

As a philanthropist, Warren maintained a continuing interest in the Atlanta Boys Club. He endowed the club with $500,000 in 1945. The funds were used to set up a clinic to provide free medical care for underprivileged youth. He also purchased the building and playground for the Boys Club.

An active interest in yachting and deep sea fishing won him his title of "Commodore."

Warren is survived by his wife Annie Laurie, a brother Lovic, and a sister Mrs. Cleo W. Turner of Atlanta.

Admiral Shipments Up

CHICAGO — Admiral Corp.'s factory shipments of refrigerators and freezers in January were the highest in any January since the company has been in the appliance business, it was announced.

Freezer sales in January were 67% ahead of the comparable month a year ago, while refrigerator movement was 32% higher.

Chase Supply Buys Blythe Co., To Operate 4 Chicago Outlets

CHICAGO—Purchase of the H. W. Blythe Co., one of Chicago's oldest air conditioning and refrigeration supply houses, by the Chase Supply Co. was announced recently by John P. Glass, president of Chase.

Glass said that no change in policy or lines carried by Chase is contemplated at the present time. Personnel of the H. W. Blythe Co. will be held intact to operate the two Blythe stores under the new management, he added.

The expanded Chase organization will operate at four locations in the Chicago metropolitan area with stocks of refrigeration, air conditioning and heating supplies offered at each location.

On the south side, Chase will maintain warehouse stocks at its home office at 546 W. 119th St. and at a branch at 7144 S. Vincennes Ave., it was explained.

On the north side, the firm will operate branches at 3900 N. Western Ave. and at 529 N. Milwaukee, formerly Blythe's main store, the firm further disclosed.

The Blythe firm was founded in 1921 by H. W. Blythe. It originally distributed automotive parts and accessories. But as the distribution of these passed from the independent dealer to the automobile dealer, the Blythe organization gradually developed distribution of air conditioning and refrigeration supplies, the announcement stated.

Carbide & Carbon To Mfr. Fluorocarbons In W.Va.; Refrigerant Sales Setup

NEW YORK CITY—Plans to build a 50 million pound per year unit to manufacture fluorocarbons have been announced by D. B. Benedict, president of Carbide & Carbon Chemicals Co., a division of Union Carbide & Carbon Corp.

The fluorocarbons production unit is to be built at the Institute, W. Va. plant of Carbide & Carbon and is expected to be in operation late in 1958.

Under John A. Field, vice president of Carbide & Carbon, the fluorocarbons will be marketed as refrigerants and propellants for aerosols. A sales organization is now being established to serve these industries. Backing up the field service group will be a customer service laboratory group to help with advice on formulations and engineering problems.

"Because of the long-term experience of Union Carbide in handling liquefied gases, the company is in a most favorable position in this marketing area," it was stated.

"From its earliest beginnings, Union Carbide has had wide experience in the production, handling, and distribution of bulk and cylinder quantities of both compressed and liquefied gases. Union Carbide's experience in this field will be helpful in meeting the very rigid specifications for fluorocarbons in the propellent and refrigerant fields.

"In addition, Union Carbide has an established distribution network already set up which now handles similar gaseous products. In the United States it has 120 bulk stations and a total of more than 1,000 warehouses from which to choose locations to provide prompt delivery service to users of fluorocarbons."

Benedict said the market for fluorocarbons as pressuring components for aerosols and as refrigerants "has grown amazingly in the last 12 years, and with Carbide's planned unit the total U. S. capacity will exceed 300 million pounds per year.

"Production and sale of the fluorocarbons is our first commercial step into the promising field of fluorine chemistry. Our research teams are working vigorously to provide new fluorine chemicals.

This latest step in a continuing expansion program by divisions of Union Carbide spotlights the corporation's broadening base of operations. In 1956, Union Carbide spent $144 millions for new construction of facilities in the United States, Canada, and overseas. In 1957, it is expected that an even larger amount will be spent for construction of new facilities.

Union Carbide's entry into the fluorocarbons field "is based upon realization of the broad possibilities of fluorine chemistry," it was pointed out.

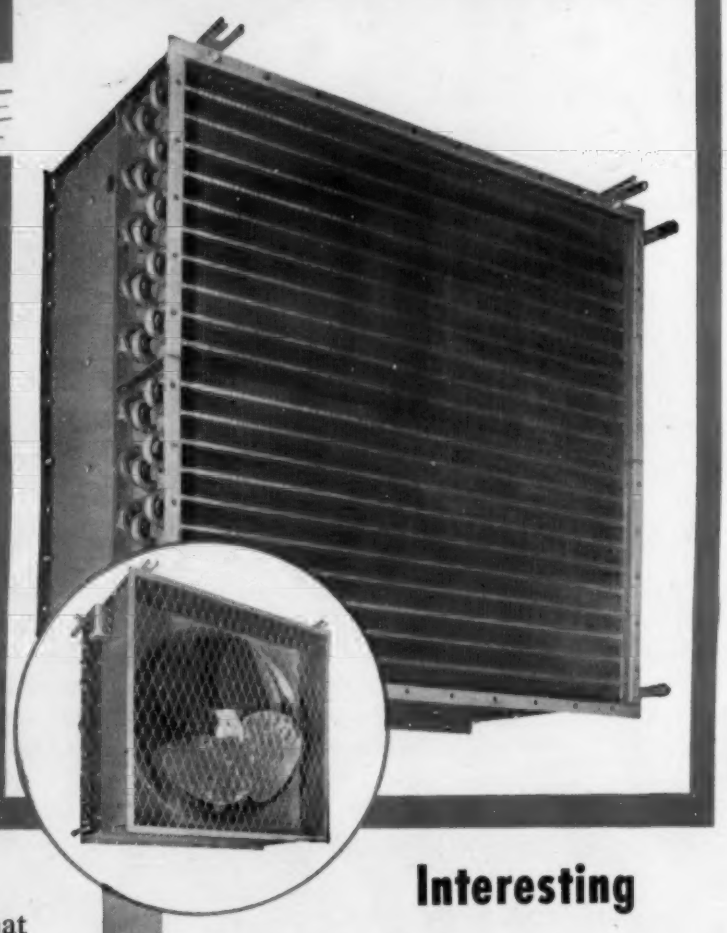
"In 1956 Union Carbide invested $55 million in research for all segments of its large and continuing program. It is expected that in 1957 at least an equal amount will be spent on these activities. Included in this research program will be intensified efforts in fluorine chemistry."

GIVE WATER WORRIES

"THE AIR"

THE LARKIN ZEPHYRCON air cooled condenser

HANDLES UP TO 40 TONS AS EASY AS A BREEZE



Here's an engineering achievement that solves several of your problems in one neat package:

1) *The Larkin Zephyrcon ends water problems from the start.* Uses only air and electricity. Eliminates worry over high water rates or water restrictions.
2) *The Larkin Zephyrcon pulls the air over the condensing coils.* This distributes the air better, holds air-stream noise to a minimum, makes removal of lint and leaves simple.
3) *The Larkin Zephyrcon operates quietly and efficiently.* It is engineered with sufficient condensing capacity to solve your problem. Low speed motors and deep pitch fans assure quiet operation.

Add to these advantages the reliability of any product bearing the name Larkin, and you have a combination hard to surpass. For full details, see your wholesaler, or write direct to us.

Interesting Facts and Features:

- 2, 3, 5, 8, 10, 16 and 20 ton units engineered for parallel use.
- Famous Larkin cross-fin coil—aluminum fins, copper tubes.
- Unit is finished with baked-on epon-base primer and melamine top coat enamel for maximum weather protection.
- Permanently lubricated motors operate quietly on resilient adjustable base. Motors are provided with overload protection.
- Motor wired to weather-proof external conduit box.
- Fan guard is standard equipment.
- Zephyrcon is weatherproofed for indoor or outdoor operation.
- Slotted hanger bars for ceiling or floor installation.
- Pre-punched holes for easy connection to duct-work.

WATCHDOG OF THE NATION'S FOOD AND COMFORT ☆ LARKIN ☆

LARKIN COILS INC.

519 Memorial Drive, S.E. • ATLANTA, GA. • MUrray 8-3171

For more information about products advertised on this page use Information Center, page 54.

Roller Rink Air Conditioning Doubles Patronage, Cuts Costs

DALLAS — Last summer's visitors to the White Rock Roller Skating Rink, located at Barnes Bridge and Garland Rds. here, were able to enjoy skating in a cool and invigorating atmosphere that only the ice rinks have offered heretofore.

The entire skating arena is now equipped with a 25-ton gas-fired Ready Power air conditioning unit, and is the first rink in Dallas to feature an air conditioned skating surface.

DOUBLED PATRONAGE

The rink's management notes that this resulted in more than doubling the patronage—with a proportional increase in revenue—coupled with an actual reduction in operating costs!

The new air conditioner maintains temperatures at approximately 75° with as many as 150 persons on the 7,500 sq. ft. of arena space.

The Ready Power air conditioning unit operates automatically at the push of a button, and an engine fueled by natural gas is used to drive the compressor unit.

Ready Power is an ordinary internal combustion engine which can be used for either direct or indirect drive, depending on the compressor, which may be purchased as a package unit. This type of refrigerated air conditioning is particularly suited to 25 through 150-ton installations.

CUTS ELECTRIC BILLS

"I figure my gas air conditioning costs me only $28 a month more to operate than the evaporative cooling I was using before," said Frank C. Dutton, operator of the White Rock rink. "I always had $120 to $130 a month in bills for electricity alone. Since I installed gas air conditioning, my electric bills have dropped to $115, and my peak gas bill was only $38.

The units operate under completely automatic control, maintaining a continuous balance of the cooling load by variations in speed and compressor capacity. Complete inter-lock and safety controls are provided to protect against failure of auxiliary equipment.

Dutton says that he will be happy to answer any inquiries regarding his installation. He may be addressed at 1616 Barnes Bridge Rd., Dallas.

Plans To Make Million Room Units In 2 Years

MASPETH, N. Y.—Although the firm worked seven years before producing its one millionth room air conditioner last September, Salvatore Giordano, president of Fedders-Quigan Corp., said it will make its two millionth unit in 1958.

He also estimated that the industry would sell about two million room units and 175,000 central units in 1957.

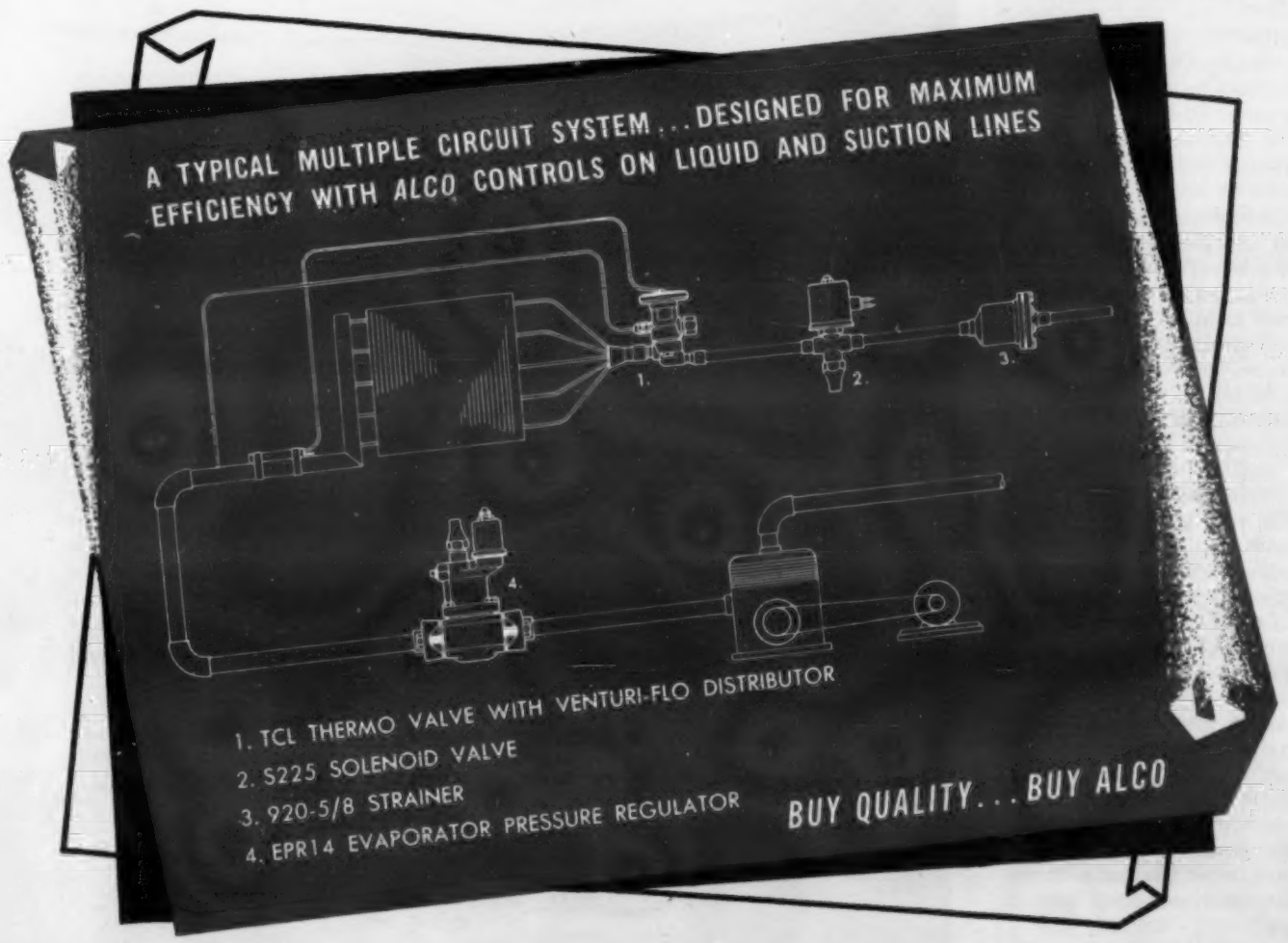
Mechanical Drawing Course Offered In San Francisco

SAN FRANCISCO — A class in mechanical drawing as it pertains to the refrigeration field and layouts of stores, markets, and restaurants, will start the first week of March at John A. O'Connell vocational evening high school and technical institute.

Prospective students are signing up with Mrs. G. W. Lindell, 3463 16th St., secretary of Bay Area Refrigeration Contractors Association, who reports 37 from employes of RACCA of Northern California members and five from BARCA members.

Advisory committee for the class consists of Frank McDermott, business agent, and M. B. Willis for refrigeration branch, UA local 38; M. H. McElroy of McElroy Refrigeration, and G. W. Lindell of Lindell Refrigeration for BARCA; and two who are to be named by President John Linford of RACCANC.

ALCO MAKES
every fluid control you need
...for any refrigeration system


A TYPICAL MULTIPLE CIRCUIT SYSTEM... DESIGNED FOR MAXIMUM EFFICIENCY WITH ALCO CONTROLS ON LIQUID AND SUCTION LINES
1.
2.
3.
4.
1. TCL THERMO VALVE WITH VENTURI-FLO DISTRIBUTOR
2. S225 SOLENOID VALVE
3. 920-5/8 STRAINER
4. EPR14 EVAPORATOR PRESSURE REGULATOR
BUY QUALITY... BUY ALCO

The one complete line of refrigerant controls: Thermostatic Expansion Valves, Refrigerant Distributors, Solenoid Valves, Suction Line Regulators, Flooded Evaporator Controls and Reversing Valves

SEE YOUR ALCO WHOLESALER

ALCO VALVE CO.
853 KINGSLAND AVE. • ST. LOUIS 5, MO.

7042

Your BIG DOLLAR *Earner Absorption Refrigerator!*

1 ½ cu. ft. Space Saver!

made to list at $129.95
can be promoted at $99.95
with full mark-up!

Foremost's LITTLE GIANT answers your year-'round demand for refrigerators for kitchenettes, cottages, nurseries, playrooms, boats, trailers, offices, hotels, labs, motels.

Noiseless - AC-DC (from 24 to 280 volts) Trouble-free—no moving parts - Freezer for ice cubes - Five year warranty - White or mahogany - 60 lbs. net weight.

Also available in 3 cu. ft. model. Both sizes also sold with built-in construction

Write, wire or phone:

FOREMOST COMMODITIES CORP.
220 Fifth Avenue, New York 1, MU 3-7978

Full Capacity One-Hp. Mobile Home Air Conditioner Operates On 115 V.

FULL-CAPACITY 1-hp. mobile home air conditioner operates on 115-v. current.

SYRACUSE, N. Y.—A full-capacity, 1-hp. mobile home air conditioner, designed to operate on the standard 115-volt electrical current available at all mobile home parks, will be introduced by Carrier Corp., at the National Mobile Home Show in New York March 5-10.

Carrier will continue to offer the ¾-hp. Roomette besides.

Loren Fletcher, Carrier vice president and Allied Products Div. general manager, said the new "Roomette" is "designed to keep pace with the trend toward larger mobile homes while at the same time meeting normal electrical service requirements."

He pointed out also that despite its increased cooling, the new Roomette takes up only 2 sq. ft. of floor space and stands by 28 in. high.

The 1957 models feature "easy installation and simple operation." The units are mounted over a small hole cut in the floor. Condenser air is drawn into the unit from the cool, shaded area underneath the mobile home, it was pointed out. No ducts are required. Automatic operation is provided by a thermostat.

West Penn Power Reports 1,838 Room Units Sold In Area In '56

GREENSBURG, Pa. — West Penn Power Co. reported that dealer sales in southwestern Pennsylvania for room air conditioners, household refrigerators, home freezers, and dehumidifiers totaled 24,784 units in 1956.

Room unit sales throughout the area reached 1,838 last year as against 1,626 in 1955. There were 17,614 refrigerators sold compared with 19,109 the previous year. Freezer sales totaled 4,953 in 1956 and 4,732 previously.

Dehumidifier sales were boosted to 379 last year and 732 in 1955, the power company announced.

FTC Says 'Port-A-Temp' Unit Is 'Not Conditioner'

WASHINGTON, D. C. — The Federal Trade Commission has alleged that "Port-A-Temp," manufactured by Roy M. Bloom, Inc., 274 Madison Ave., New York City, is not a genuine air conditioner as advertised.

The Commission alleges, in a complaint charging the company with false advertising, that, to the public and the trade, an air conditioner is an appliance that will simultaneously control the temperature, humidity, and circulation of air.

The capacity of the "Port-A-Temp" to cool or dehumidify air is so slight, the complaint alleges, that any reference to these functions in advertising is unwarranted.

According to the complaint, the device consists of a small electric fan, two blowers, a fiber glass filter, and two rubber trays encased in a rubber and plastic case.

To operate the "Port-A-Temp" two small cans of refrigerant, which must be cooled in the refrigerator periodically, are placed in the rubber trays. The fan then draws air in through the filters, over the cans of refrigerant, and out two grilled openings.

The complaint cites as examples of false advertising the following claims:

"ENJOY AIR CONDITIONED COOL COMFORT! . . ."

"PURIFIES AIR—'Fiberglas Filters' filter dust, dirt, soot, and pollen. . . ."

"Helps dehumidify the air."

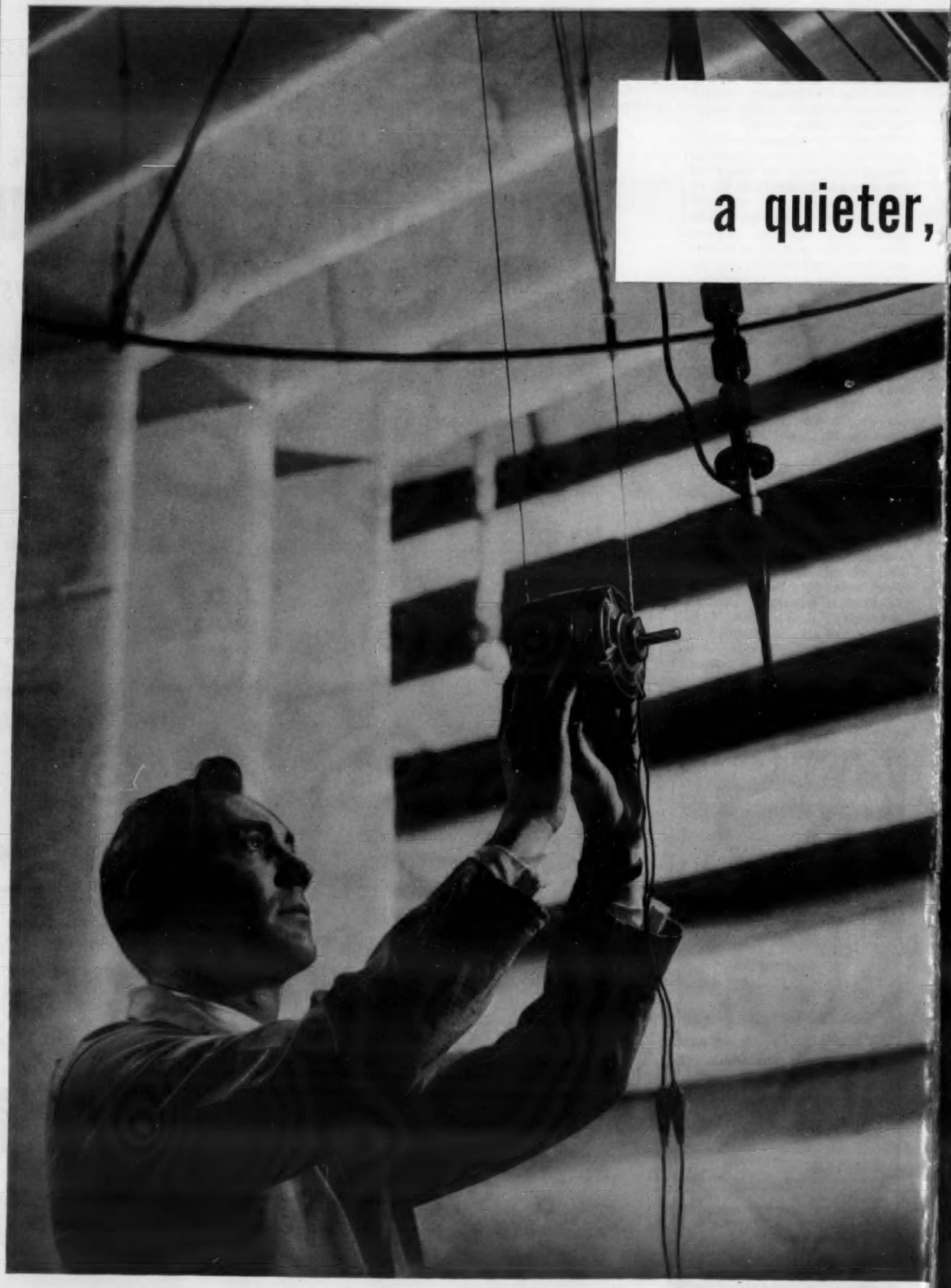
"Purifies the air."

"Establishes a zone of cooling comfort."

These claims, the complaint concludes, mislead the public and unfairly divert trade from competitors in violation of the FTC Act.

Named in the complaint is the president of the company, Roy M. Bloom.

The parties have until March 20 to file answer to the complaint. A hearing is scheduled April 22 in New York City before an FTC hearing examiner.



For more information about products advertised on this page use Information Center, page 54.

N. H. Bill Would Ban Appliances Not OK'd

MONTPELIER, N. H.—A bill that would prohibit the sale of electrical appliances unless they carry approval of the fire underwriters was introduced in the New Hampshire legislature recently by Rep. James C. Rathbone of Exeter, it was announced.

Rochester ASRE Hears Schenck on Controls

ROCHESTER, N. Y. — Control of refrigeration equipment was discussed by John A. Schenck, director of engineers, Alco Valve Co., before the Rochester Section of the American Society of Refrigerating Engineers, the group recently reported.

Conditioning 'Limited Use' Display Room Ups Store's Sales

NEW ORLEANS — An unusual "gamble" in the installation of four 1½-ton General Electric package air conditioning units has "paid off" impressively at F. F. Hansell & Bro., office supply retailer here.

The scene of the "gamble" was the Hansell store's third-floor office furniture showroom. Here, in a space of 100 by 35 ft., the store shows a complete inventory of desks, chairs, tables, lamps, files, and decorative office accessories. Also included are some complete model offices designed for "flat price" sales to businessmen clients who want to set up a complete office without any of the usual headaches.

Even though the summer-month temperature in New Orleans is often above the 100° mark with 85 and 90% relative humidity, the Hansell store did not air condition the office furniture department until 1955. The chief reason was the fact that the big display room is in comparatively limited use, with an average of six to 10 prospects per 8-hour sales day brought in to look at stock.

When no salesman and prospect are on the floor, the room is simply kept dark, where it builds up a highly unpleasant temperature through June, July, August, and September.

Anxious to increase sales, however, Victor Hayes of the Hansell management, made an analysis which was designed to "look at the selling technique from the customer's standpoint."

Among the points which this analysis turned up was the fact that the usual office furniture customer would spend a minimum amount of time on the uncomfortably hot sales floor in selecting the piece of office furniture and would usually beat a hastry retreat, "mopping at a damp forehead," to talk details of price, delivery, etc., on the cool, air conditioned first floor.

Consequently, to provide the maximum possible appeal in office furniture sales operations, Hansell's decided that air conditioning was worthwhile even though it was admitted that only a few customers per day would get the benefit of it.

Much study went into the air conditioning eventually selected. A remote system large enough to cool the area proved to be prohibitively expensive, particularly in view of the amount of architectural changes which would be required.

A single large package conditioner, likewise, was ruled out because of the "pool" effect which it might create.

Eventually it was decided to use small package units, two at the front of the sales floor, two at the back. This would require a minimum amount of installation effort and remodeling.

The system, as finally installed, represented an investment of $1,600, with 220-volt wiring, circuit breakers, and special mounts for the cooling units, involved in the price.

Now, after two summer seasons, the Hansell store reports itself "delighted with the results."

Because the sales floor is kept dark, eliminating electrical heat load when not in use, and because of the small amount of traffic moving through the floor, the four air conditioning units have proved thoroughly adequate to maintain a cool, pleasant atmosphere.

"The effect on sales has exceeded anything we expected," Hayes reports. "When a prospect is cool enough to sit down at one desk after another, experiment with this and that feature on the furniture, and otherwise enjoy himself, our opportunities of grading him up into a better price bracket are considerably multiplied.

"Also, we have found that we can sell more pieces of furniture per prospect simply because we can take the time and trouble to work out an ensemble of furniture to match up for contrast colors, etc.

"In this way, our showroom is the only air conditioned furniture showroom in the area, and it will pay for itself in a minimum amount of time."

GENERAL ELECTRIC ANNOUNCES . . .

more efficient shaded-pole motor

For your customers' satisfaction, General Electric offers you two important advancements in its 5" dia. unit bearing shaded-pole motor design. ***This new General Electric shaded-pole motor has a 40% lower sound level, and is nearly five percentage points more efficient than the previous design.***

In order to put this new motor on the "very quiet" side, General Electric engineers made extensive use of G.E.'s industrial sound laboratory. Here, the new motor design was tested thoroughly—both free-running and mounted-on-products. As a result, General Electric engineers achieved a marked reduction in over-all motor sound level, and improved sound quality by eliminating objectional noise frequency peaks.

LESS NOISE MEANS MORE SALES FOR YOU

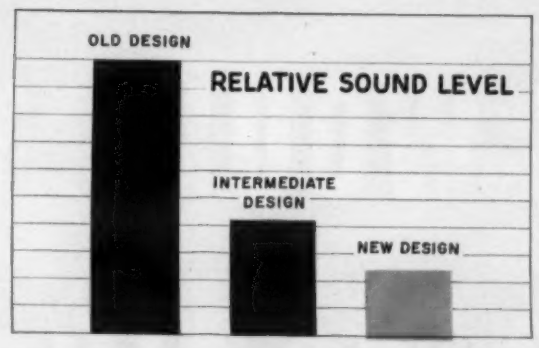
This combination assures you of a *truly quiet* motor for those applications where noisy operation can mean lost sales—for example, in appliances and air-moving devices for homes, hotels, hospitals, etc. The significant increase in shaded-pole motor efficiency was made possible by a new magnetic stator design—completely new to shaded-pole motors.

This new design decreases watts input between 7 and 20% (depending on the motor rating), without a sacrifice in power output.

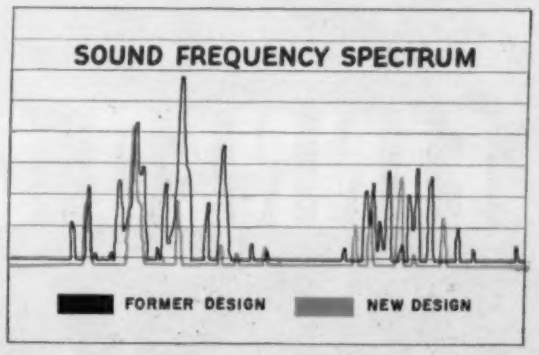
LONGER MOTOR LIFE RESULTS FROM HIGHER EFFICIENCY

Of course, increased efficiency also results in a cooler-running motor—giving you longer bearing life *and* longer over-all motor life.

These two new advances are proof of General Electric's continuing leadership in shaded-pole motor manufacture and design. For further information on the many additional features of the G-E shaded-pole motor line, contact your nearby General Electric Apparatus Sales Office, or write: Section 632-7, General Electric Co., Schenectady 5, N. Y. and ask for bulletin GEA-6134.



Bar graph shows that new shaded-pole motor has a 40% lower sound level than previous design, over 74% lower than old-style design.



Actual sound frequency spectrums show how new design motor eliminates objectionable sound frequency peaks, improves sound quality.

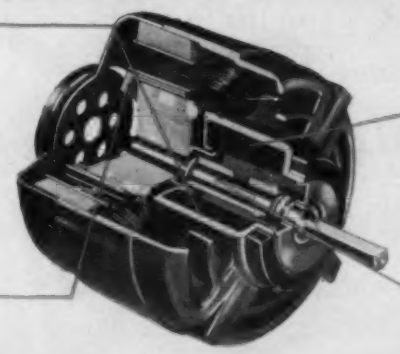
Progress Is Our Most Important Product

GENERAL ELECTRIC

. . . PLUS THESE PROVEN BENEFITS OF G-E UNIT BEARING DESIGN

Bearing housing of integral cast design provides accurate alignment for smooth, quiet operation. Sturdy sleeve bearing handles normal radial and axial thrust loads in any mounting position.

Large die-cast fan integrally cast on rotor assures maximum heat dissipation for longer motor life.



Forced lubrication system provides constant supply of recirculated, cooled, and filtered oil for longer life, quieter operation.

Large capacity sealed oil system is designed for years of dependable service without re-oiling, permits all-angle mounting.

For more information about products advertised on this page use Information Center, page 54.

Gear Works Leases Equipment

'Through-The-Window' Air Conditioning Controls Temperature In Transmission Plant

INDIANAPOLIS — Several air-cooled air conditioning units totaling 176 tons in capacity have been installed at the 25,000-sq. ft. main plant of Indiana Gear Works, Inc. here, manufacturer of machine parts, to maintain design tolerances and increase plant efficiency.

The air conditioning equipment was installed and is serviced by Air Conditioning Equipment Co., Indianapolis under a leasing arrangement. Another unusual feature of the installation is that the units were placed on the outside walls.

Indiana Gear Work fabricates helicopter transmissions. Temperature control is essential to some phases of its work because temperature variations cause large dimensional variations in the metal being worked. This is especially true of the transmission housing which is made of magnesium.

Moreover, as a result of air conditioning the plant, machine equipment is not subject to blowing dust and dirt, ordinarily present with the mere use of industrial fans, it was pointed out. Instead, the lathes, drill presses, screw machines, and their accompanying power sources are protected and given longer operational life.

The air conditioning units were engineered and built by Typhoon Air Conditioning Co., Div. of Hupp Corp.

According to Indiana Gear President John L. Buehler, the major reason for installing this equipment was that the units were capable of being installed rapidly, without causing costly down time.

"By means of mounting the units through existing windows, costly construction work was avoided," he said, "and there was no disruption of our work schedule.

"Furthermore," he said, "these units did not require expensive ductwork. Also, they did not take up valuable floor space inside the plant, since they were placed on the outside walls of the plant building."

He also cited ease of operation by means of a single off-on switch, mounted in the plant office.

TYPHOON air conditioning units are mounted on outside walls at the Indiana Gear Works, Inc. Indianapolis. Conditioned air enters the plant through existing windows, eliminating ductwork. Savings in floor space and "down time" for the plant also resulted from the exterior installation of the leased equipment.

The air-cooled condensers in this system are products of Refrigeration Appliances, Inc. They are the new Krack single unit condensers, said to be one of the largest units of their kind on the industrial market. In this installation, two 20-ton condensers have been banked over each of the four individual air conditioning systems.

Indiana Gear leases the air conditioning units, at a predetermined and fixed fee, under a five-year program, with an option to renew the lease for another five years. The company does not have an option to buy the equipment. The units remain the property of the contractor.

This procedure is said to have several advantages. These were listed as follows:

"1. Indiana Gear is guaranteed a specific service, namely a specified temperature at a specified humidity. Because of the particular requirements within the plant for maintaining close tolerances, the ambient temperature is maintained at 78° F. plus or minus 1° with a relative humidity of 55% plus or minus 3%.

"2. Indiana Gear receives 24-hour stand-by service on the air conditioning equipment.

"3. The company knows just how much it costs to have the plant air conditioned, under the fixed-fee program."

New Plant Mfg. Ducts, Piping

LOUISVILLE, Ky. — Clayton & Lambert Mfg. Co. recently began making air conditioning ducts and piping and farm structures in a new $1.5 million plant near here, the manufacturer announced.

Machinery is being moved from the firm's Middletown, Ohio, plant to the new building which will eventually cover 500,000 sq. ft. and will employ 100.

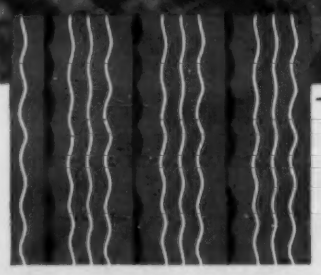
1,000-Ton Duplex Unit To Cool Shopping Center

LA CROSSE, Wis.—One of the largest capacity "CenTra-Vac" automatic hermetic centrifugal refrigeration units made by Trane Co. here was shipped in component parts for installation in the new Allied Stores-Bergen Mall shopping center in Paramus, N. J., the company announced.

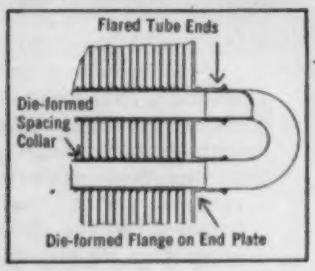
The huge 1,000-ton duplex unit will air condition the center year-round, the company explained.

SO HALSTEAD & MITCHELL ASKED ENGINEERS

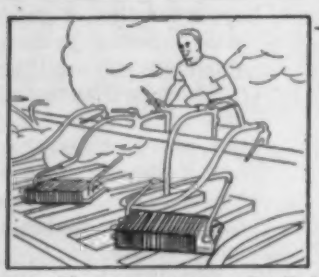
WHAT WOULD YOU CHECK TO FIND A BETTER FINNED COIL?



IS HEAT TRANSFER IMPROVED?
H & M's "Turbu-Flo" finned surface increases air turbulence between fins for better air-to-surface contact. With air film resistance lowered, heat transfer is markedly increased.



IS MECHANICAL DESIGN SUPERIOR?
H & M structural design severely restricts vibration and expansion-contraction effects. Die-formed spacing collars on the fins provide a rigid seat for a mechanical locking of fins to tubing.



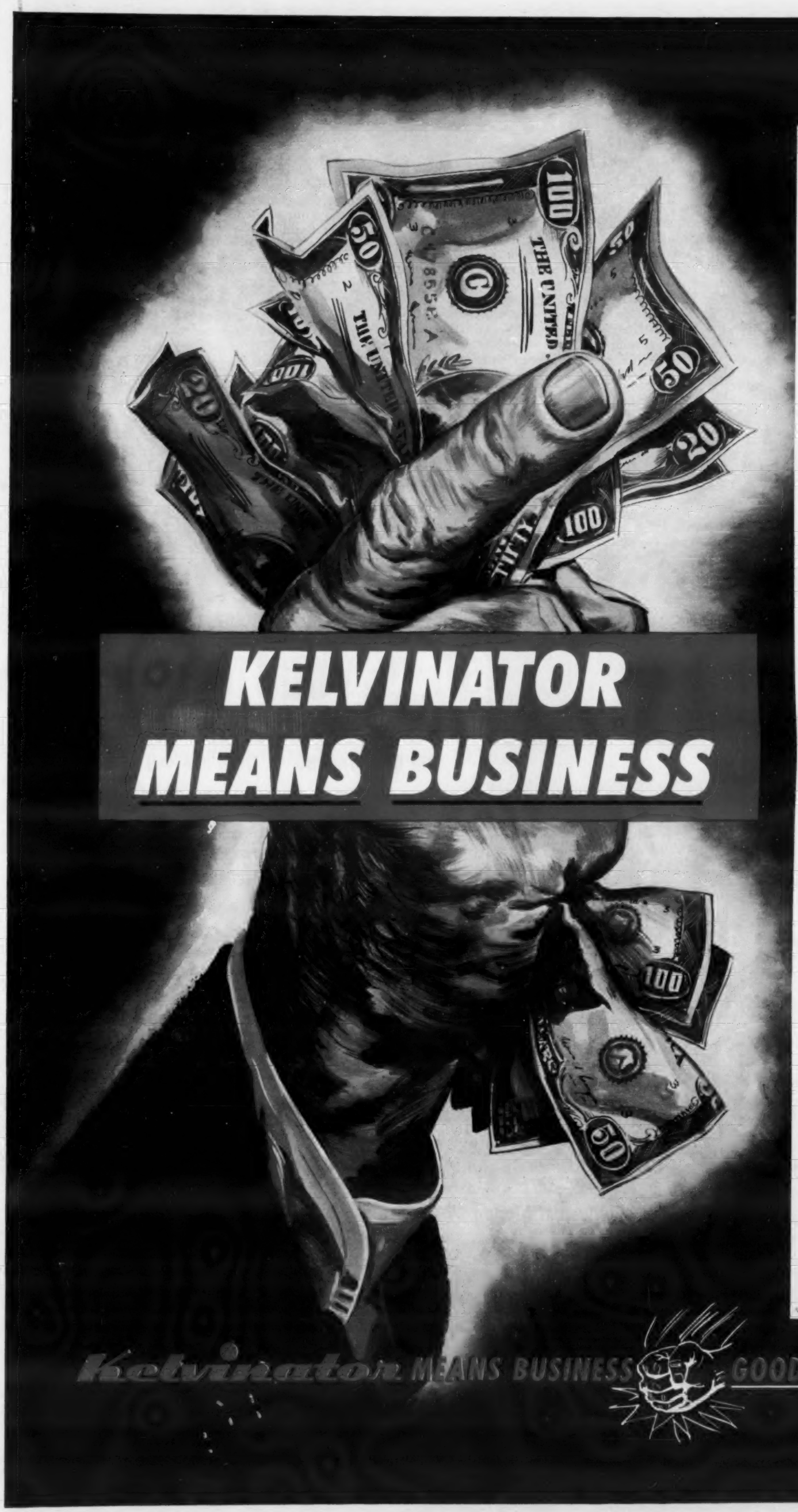
IS TESTING "AIR-TIGHT"?
Every Halstead & Mitchell coil is tested for leaks with 300 psi air pressure under water. Coils are cleaned, dried by blow out with high pressure steam—then dehydrated in a 400°F oven.

If you want more detailed information describing the *better* finned coil with "Turbu-Flo," the *better* fin surface, please check the appropriate block to the right, and mail this ad with your name, title and company name and address to *Halstead & Mitchell, Bessemer Building, Pittsburgh 22, Pa.*

We are highly competitive folk, interested in the sale of large numbers of direct expansion coils, standard and non-freeze steam coils, and air-cooled condensers. We ask your engineers in this industry what features cause you to specify one finned coil over another—and our Halstead & Mitchell engineers then design to this extra-high level. We thought you'd be interested in points your engineers have stressed, for paying attention to them has boosted Halstead & Mitchell finned coil sales.

Halstead & Mitchell

☐ Air-Cooled Condensers, Bulletin AC-100
☐ Direct Expansion Cooling Coils, Bulletin DE-200
☐ Steam Coils, Standard & Non-Freeze, Bulletin S-200
☐ Special Evaporator and Condenser Coils to your specifications



Here's Why Kelvinator Means More Business For You in '57!

New *Store-Easy, See-Easy, Reach-Easy* design means new convenience for buyers of 1957 Kelvinator Refrigerators . . . means

MORE REFRIGERATOR BUSINESS FOR KELVINATOR DEALERS.

The Miracle of Electronic Cooking opens up new vistas of leisure and appetizing foods for America with the 1957 Kelvinator Electronic Range . . . means

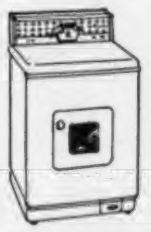
TERRIFIC SHOWROOM TRAFFIC FOR KELVINATOR DEALERS.

World's Easiest Cleaning, Fastest Electric Cooking brings in more prospects for Kelvinator Electric Ranges in 1957 . . . means

EXTRA ELECTRIC RANGE VOLUME FOR KELVINATOR DEALERS.

New "Magic Minute" demonstration of automatic pre-scrubbing sells customers on the 1957 Kelvinator Automatic Washer . . . means

RECORD WASHER SALES FOR KELVINATOR DEALERS.



New Super-Speed, Super-Safe electric drying saves time and protects clothes for buyers of the new 1957 Kelvinator Automatic Dryer . . . means

A PLUS SHARE OF THE FASTEST-GROWING APPLIANCE SELLER FOR KELVINATOR DEALERS.

Revolutionary Two-Directional air conditioning means hot-weather comfort for purchasers of 1957 Kelvinator Room Air Conditioners . . . means

NEW AIR CONDITIONER VOLUME FOR KELVINATOR DEALERS.

Kelvinator, Division of American Motors Corp., Detroit 32, Mich.

Kelvinator MEANS BUSINESS — GOOD BUSINESS FOR YOU!

New Orleans—*A Look at the Cooling Market*

1. Commercial Field Nears Replacement Stage
2. Big Building and Industrial Sales Advance
3. Residential Offers Problems, But Moves Ahead

NEW ORLEANS — In this fabled city just above where the Mississippi River flows into the Gulf of Mexico, one of the few metropolitan areas in the United States with a really semi-tropical climate, air conditioning is an accepted way of life.

Here, for some time now, the major office buildings, theaters, hotels, supermarkets, department stores, and restaurants have been air conditioned. Even the smaller firms such as drugstores, groceries, barber, and beauty shops offer their customers and employes cool temperatures and controlled humidity through air conditioning. Churches, too, have gone in for air conditioning to keep their congregations and parishioners comfortable.

Commercial Replacement Market Opening Up

Consequently, in the commercial field the market saturation is high and has been so long enough for a replacement market to begin opening up.

A tabulation of sales by size of installation in the commercial and industrial market shows some slight declines in 1955 in capacities from 3 through 7½ tons, but increased sales in the 10 through 50-ton installations.

Another significant figure is the total of 4,200 tons of air conditioning in installations in 1955 over 50 tons in size, a good increase over 1954, and nearly three times the 1953 total. This would seem to indicate that most of the new commercial construction was being air conditioned, and that installations in existing facilities might be on a complete, rather than a piecemeal basis.

Utility Promotes Air Conditioning

New Orleans Public Service, Inc., the utility company which supplies electricity, gas, and transit service to New Orleans, does not merchandise equipment, but it does have active dealer and customer relations programs.

A personal call is made on every commercial customer at least twice a year and up to once a month. This not only results in keeping the utility well acquainted with the customer's requirements but also turns up a lot of information on the market for new equipment which the dealers can use to advantage.

Attic Fans Cited In Residential Lag

A new booklet for residential customers promotes the better use of air conditioning and emphasizes the advantages of keeping the air conditioning system in operation at night and at other times when the heat load is not so great. It also shows residential users the value of using air conditioning equipment for ventilating and air filtering purposes at such times when cooling may not be required. This has helped to sell the idea of air conditioning generally and should help bring better balance to the air conditioning load.

In the residential category, New Orleans has lagged somewhat behind the achievements made in the commercial field. This can be attributed in part to the heavy use of attic and window fans for cooling, in which New Orleans was one of the pioneers, and the relative coolness of the summers. When other parts of the country are recording temperatures of over 100°, in New Orleans the temperature rarely goes over 96°. In fact, the August normal daily average is 83.4° (U. S. Weather Bureau 50-year period).

The awareness of the benefits of air conditioning by New Orleans residents, however, is increasing each year. Room air conditioner sales advanced in New Orleans in 1956, as compared with 1955, according to information gathered by the utility. Distributor sales of room units through August were over 15,000 units, compared with 12,600 for the same period for 1955.

While average size of the units was larger in 1956, it was noted that the 115-volt units constituted 57% of the '56 total, as compared with 49% the previous year, reflecting the influence of the 12-amp., ¾-hp. unit.

What about residential central air conditioning? Installations have continued to increase from year to year.

Here's the record of 3 hp. and larger installations in residences by years:

Year	Number Installations
1956 (through 10/9)	434
1955	393
1954	224
1953	170
1952	106

There is evidence, however, that the market is growing and will continue to do so. A sample survey of new home construction in homes of the $12,000 and higher price class revealed that 9.5% of these had central electric-type air conditioning systems (there were also some with gas systems).

97% of New Homes Have 240-Volt Service

Another phase of the survey, of primary interest to the utility, but also of some significance to the air conditioning field, is that 97% of the new home construction surveyed installed 240 volt service. Of interest to dealers also, 52% had 5 or 6 electrical circuits, another 16% had 7 or 8 circuits, and another 17% had over 8 circuits.

A check of a new housing project of 358 units, where the buyers had the option of having the home constructed with proper ductwork and wiring for installation of a central residential air conditioner, revealed

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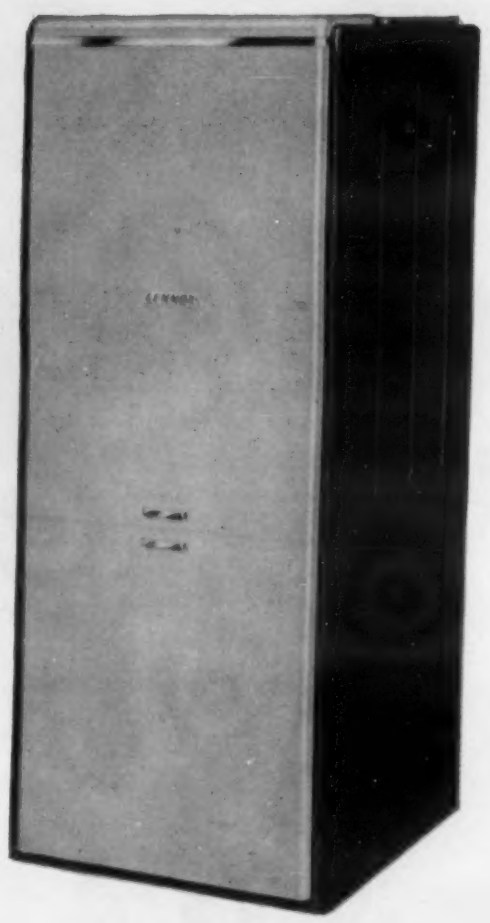
Another reason more **AIR CONDITIONING DEALERS** are switching to



LENNOX

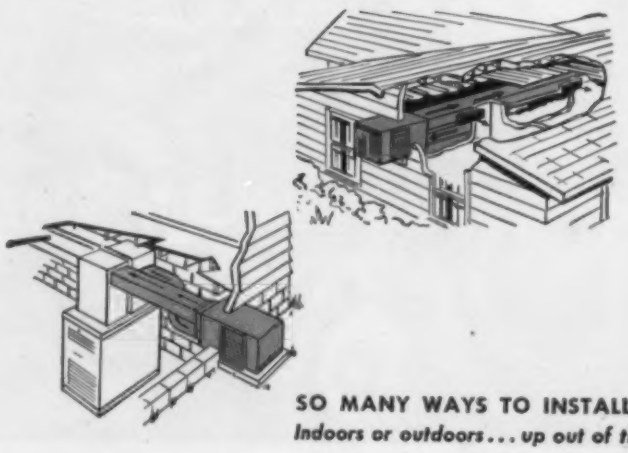
your builders'

AIR CONDITIONING . . . WITH HEATING OR ALONE . . .

- *Both air and water cooled systems*
- *Single package and remote units*

If you're interested in BIG volume . . . if you want to cash-in on the tremendous amount of home building in your area, here's great news for you. Lennox not only makes the most versatile line of home air conditioners, but has developed a special builder promotion campaign. Lennox gives you something EXTRA

Here it is . . . the NEW air conditioner that "wowed 'em" at the N. A. H. B. Show in Chicago . . . **LENNOX Stowaway**



Here's how to slash hundreds of dollars off the cost of residential air conditioning. No wonder the Stowaway literally "stole" the home builders' show!

•Air Cooled •Amazing Low Price

•Self Contained Unit •No Plumbing Needed

SO MANY WAYS TO INSTALL

Indoors or outdoors . . . up out of the way

For more information about products advertised on this page use Information Center, page 54.

New Orleans Cooling Market - -

(Concluded from preceding page)

that 110 of the buyers took this option (this did not necessarily mean that air conditioning was installed before occupancy). The remainder had their homes wired so that installation of room air conditioners would be facilitated.

New Home Owners Install Cooling In Few Years

However, it is said that a number of new homeowners, who do not install air conditioning at the time they build, are installing air conditioning within a few years after occupancy, and this is leading to more homes being constructed with proper ductwork and other facilities for the later installation of central comfort cooling.

Other factors that must be taken into consideration in the study of the market for central residential air conditioning systems are the relatively high cost of land for new home construction (in proportion to the total cost of the new home) and the nature of the income levels of the populace.

No Large 'Upper Middle Class' Group

The problem in income level is that there is not a large "upper middle class" income group, as is often found in more heavily industrialized metropolitan areas.

A survey of customers on the utility's lines at the end of 1954 indicated that 78% had incomes of $5,000 or less. Of the balance, 4% of the total had incomes over $10,000.

While 43.3% of the users of electric service owned their own homes, it is interesting to note that 29.1% of the total lived in a one-family dwelling. Of the remainder, 46.5% lived in two-family homes, and 24.4% in multi-family (3 or more) homes.

An encouraging note in the residential air conditioning picture was sounded by Charles Gambel, General Heating & Air Conditioning Co., distributor for General Electric, who sold more air conditioning jobs in October than in July.

"I can't say that it was due to any special sales effort or follow-through on our part, although most of the sales are to people we had contacted at one time," Gambel relates.

"It seems that most of them have just thought it over, and made their decision to go ahead with it, and figured that the present time—which is kind of in between seasons in New Orleans—is a good time to go ahead with it."

New Orleans Commercial and Industrial Air Conditioning Installations

Size Tons	1952	1953	1954	1955
3	122	82	131	47
5	192	139	177	87
7½	78	84	99	40
10	8	15	54	59
15	9	13	31	20
20	11	10	6	8
25	....	....	....	....
30	4	4	3	4
40	1	1	3	3
50	1	1	2	2
Above 50 tons	13,672 tons	1,545 tons	3,370 tons	4,200 tons

Gambel reiterated the point about the problems with new homes, stating that virtually no "tract" or project homes are offered with air conditioning as standard equipment. However, the trend is definitely towards providing insulated ductwork, sized properly for cooling operations, thus paving the way for later installations.

In the existing dwelling market, there is a spark of interest among owners of rental properties, who apparently sense in air conditioning a promotion "gimmick" that will attract tenants.

Here are some other observations by Gambel on the residential market:

About 75% of the installations are putting the cooling coil and air handling sections, at least, in the attic. (Practically no homes in New Orleans have excavated basements.)

This may be one of the reasons why quiet operation is becoming a must in residential jobs. ("A system with a noise level that got by two years ago is unacceptable today.")

Trend Toward Remote Air-Cooled Installations

While the water situation in New Orleans is not a major factor, the big trend is to the remote-type air-cooled installation.

Some of the best jobs that his firm has done have been in the large "mansion" type residences, Gambel relates. He cites the installation for a home owned by a member of a prominent family.

A 17-ton installation provides not only comfort, but protects priceless art treasures. The installation is split up among several package systems, one of which provides cooling for a special room in which a volunteer Red Cross group rolls bandages. Some of the units are inter-connected so that sufficient capacity can be provided for the large rooms in which entertaining is done.

Gambel's views on the commercial market coincide with some of the utility company findings.

"This past year we had our salesmen make some spot checks on the major type of small commercial prospects—food stores and food serving establishments. From those who didn't have air conditioning we got pretty much this same story—

" 'Do you think I'm crazy or something?" If I could possibly afford air conditioning, I'd have had it years ago.' And that's about the story, the only ones who don't have it are those who are operating on too low a margin to afford it."

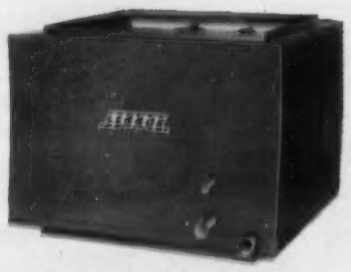
On the other hand, the market is assured in most new commercial, and some industrial buildings, and in renovation of commercial property. And these are jobs in larger tonnages.

In one recent installation in a 12-story office building, the distributor installed 26 7½-ton horizontal package conditioners, 15 tons going in elevator passageways on each floor.

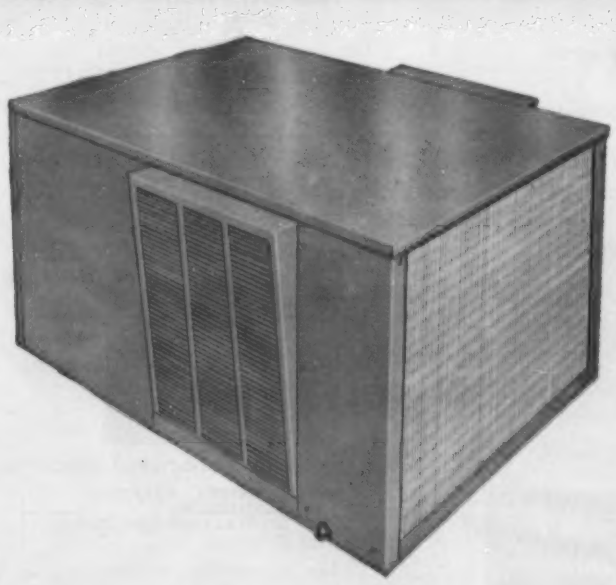
LENNOX

has the profitable answer to air conditioning needs!

IN STYLES THAT ARE POPULAR, PRACTICAL AND PROFITABLE



to sell to builders . . . then helps the builders sell *extra* homes! . . . *to make more money for you.* But that's just a small part of the story of how Lennox dealers everywhere are getting *volume* business in residential air conditioning by cashing in on the building boom. Let us tell you more at your convenience.



CLIP AND MAIL *Today!*

LENNOX Industries Inc.

(Address nearest branch. See locations below.)

Tell me more about the LENNOX builder program and how I can get greater air conditioning sales with Lennox. No obligation on my part.

COMPANY.....

ADDRESS.....

CITY.....STATE.....

MY NAME.....

LENNOX Industries Inc.

Established 1895

Marshalltown, Iowa • Columbus, Ohio • Syracuse, N. Y.
Salt Lake City, Utah • Los Angeles, Calif. • Fort Worth, Texas
Decatur, Ga. • Des Moines, Iowa
LENNOX Industries (Canada) Ltd., Toronto, Montreal and Calgary

For more information about products advertised on this page use Information Center, page 54.

Air Conditioning Equipment Goes Atop Walk-In Coolers

Summer Resort Supermarket Installs Packaged Units on Steel Platforms

BELLE HARBOR, L. I., N. Y. —Located in this summer resort where store traffic is especially heavy during summer months, the newest Waldbaum supermarket is completely air conditioned.

The 15th unit in the Waldbaum chain was equipped with two 25-ton Typhoon packaged units by Kold-aire Refrigeration Co. of Brooklyn. They were installed on a steel platform over the walk-in coolers in the backroom so that no valuable floor space was used.

Describing the installation, Milton Leichter, Kold-aire engineer, noted that the selling area is approximately 102 ft. by 114 ft. with a 15-ft. hung ceiling.

"There were to be 277 lineal ft. of open refrigerated display cases and the lighting load was close to five watts per square foot," he explained.

"In addition to this we had to take into consideration a main display window 100 ft. long, and the fact that this market was in a resort area with high summer occupancy."

These factors dictated an air conditioning system consisting of 50 tons of cooling equipment and 700,000 B.t.u. of heating.

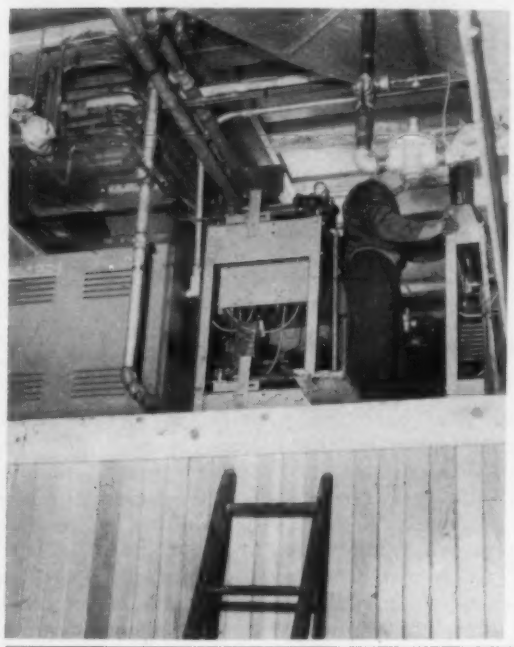
"On the basis of efficiency, physical dimensions, and economy," said Leichter, "it was decided to use two 25-ton Typhoon packaged units and split them. Each low side unit, reworked for horizontal rear discharge, was coupled with a 450,000-B.t.u. duct heater and suspended from the ceiling in one section of the rear stock and work area.

"This particular area was 19 ft. wide and had a 22-ft. ceiling. It was mainly occupied by walk-in boxes. In order to conserve floor space, a steel platform was installed above the walk-in boxes, and the air conditioning units, in racks, were placed on this platform."

Air distribution is through ducts and ceiling diffusers.

All heating and air conditioning thermostats and switches were placed in the store office in the main selling area. All electrical controls, magnetic starters, line switches, were installed remotely on a panel centrally located between the two pieces of equipment.

"At best," said Leichter, "supermarket heat load requirements are a compromise between the main variables entering the picture and the economics of the supermarket operation. Under the circumstances, packaged equipment has proved ideal for the Waldbaum market."



RAISED PLATFORMS over walk-in coolers are used to install Typhoon air conditioners in Waldbaum's Supermarket in Belle Harbor, L. I., N. Y. This location saved valuable floor space in the resort area market.

2 Night-Shift Crews Will Air Condition Carew Tower

CINCINNATI — The Carew Tower, this city's largest office building, is going to be air conditioned, according to Harry J. Fath, executive vice president of Thomas Emery Sons, Inc., owner.

Fath said the York Co. will handle the installation. The program, costing approximately $1.4 million, will involve air conditioning of the seventh to 39th floors. The first six floors are occupied by the Mabley & Carew Co. and four of the top six floors by executive offices of the Emery Co.

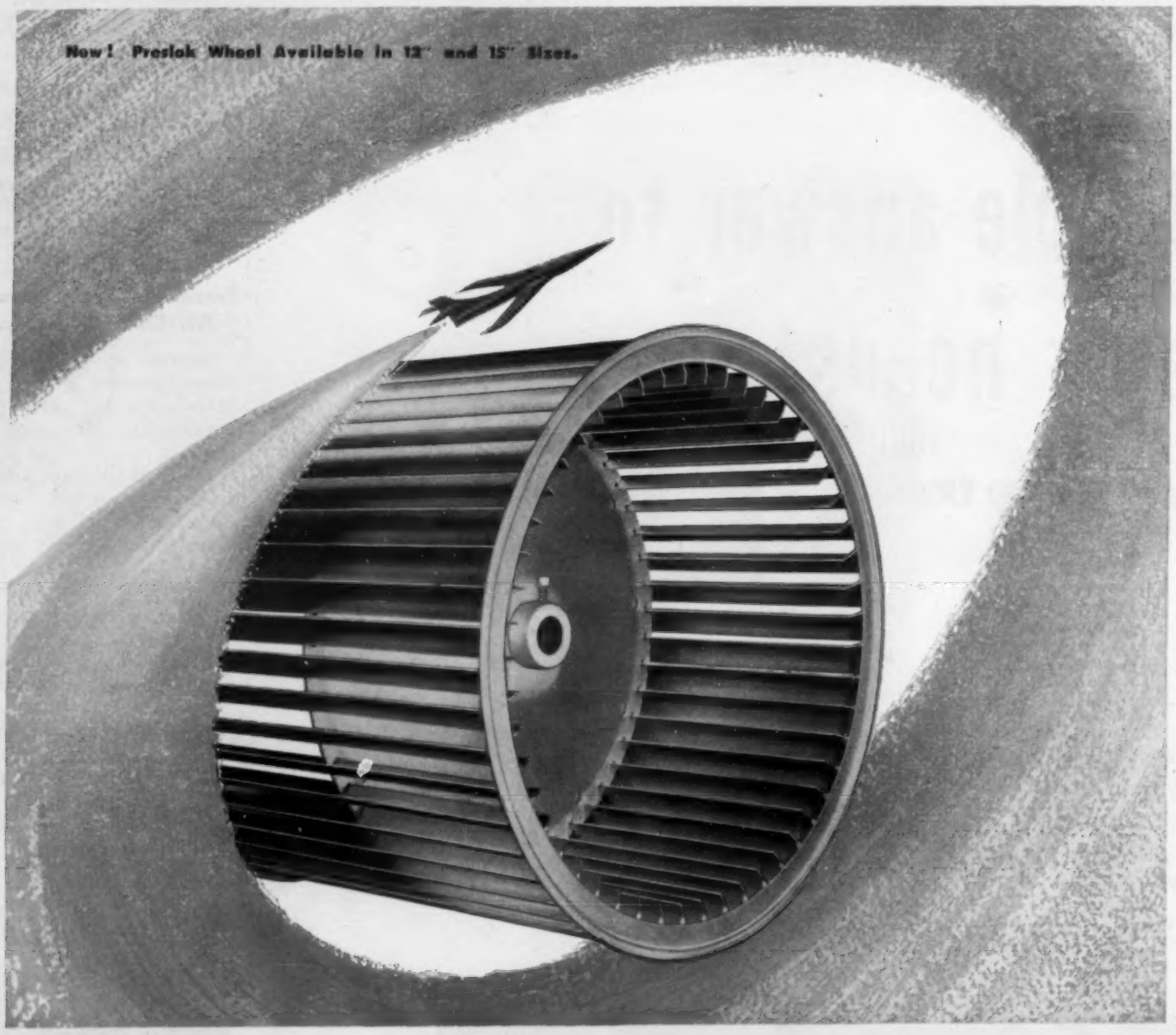
According to Fath, "all work in the office areas will be completed by two night shifts, working between 5 p.m. and 7 a.m. so tenants will not be disturbed.

He said the air conditioning project will involve installation of 1,328 fan cooling units, to be placed under the windows, a cooling tower on top of the 25th floor roof of the garage building, and five interior zone air handling units.

Work on the project begins immediately, with a completion date set for May 1, 1958. More than three carloads of steel pipe in addition to copper piping will be used in the project.

Cooled Plant Addition

WAYNESBORO, Ga. — The Waynesboro Garment Co., Inc. has announced plans for the construction of a $150,000 air conditioned addition to its plant.



GIVE YOURSELF A SPEED 'MARGIN OF SAFETY'

Specify Preslok® Wheel . . . Guarantees 50% More Operating Speed

LAU®

Are your modern air conditioning requirements calling for greater speeds, higher statics? *Preslok is guaranteed to increase your operating speed maximums by at least 50%!*

With Preslok, the center disc grips the blade mechanically by an exclusive Lau locking method. Four disc fingers slip into the blade aperture and are pressed together in locking position. *Preslok eliminates ballooning at higher speeds . . . insures a quiet operation.*

One more advance for Lau engineering. One more answer to the needs of original equipment manufacturers, made possible by superior Lau engineering and production skills.

Perhaps your organization is confronted with a difficult air-moving problem right now. If so, why don't you call in Lau, who have pioneered so many advances in more than 25 years of service. Write Dept. M, today.

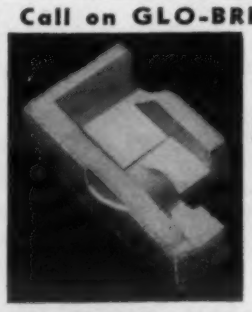
See Us February 25 to March 1 at Booth 836, International Air Conditioning Exposition, Chicago, sponsored by ASH&AE.

THE LAU BLOWER COMPANY
2007 Home Avenue, Dayton 7, Ohio
Azusa, California. In Canada: The Lau Blower Company of Canada, Ltd., Kitchener, Ontario

World's Largest Manufacturer of Air-Conditioning Blowers

I-57

Call on GLO-BRITE for



Dow Styrofoam

Koppers Dylite

EXPANDED POLYSTYRENE PARTS FOR
REFRIGERATORS, FREEZERS,
AIR CONDITIONERS,
LOW TEMPERATURE ENCLOSURES,
PIPE COVERING.

Low Temperature Insulation Shaped or Molded Precisely to Your Specifications.

GLO-BRITE PRODUCTS, INC.
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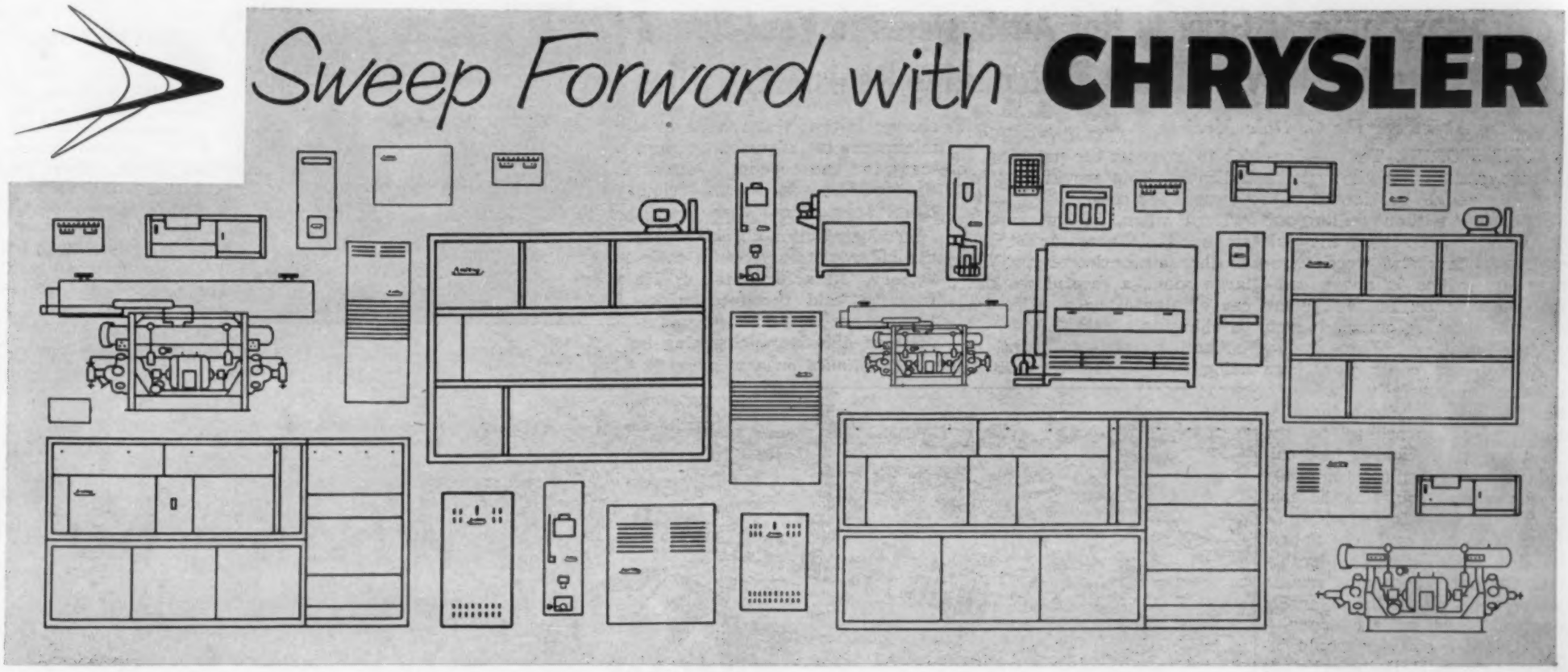
Chicago 45, Illinois



AIRTEMP DEALERS sell more—with more!

286 models give Airtemp dealers greater opportunities for sales.

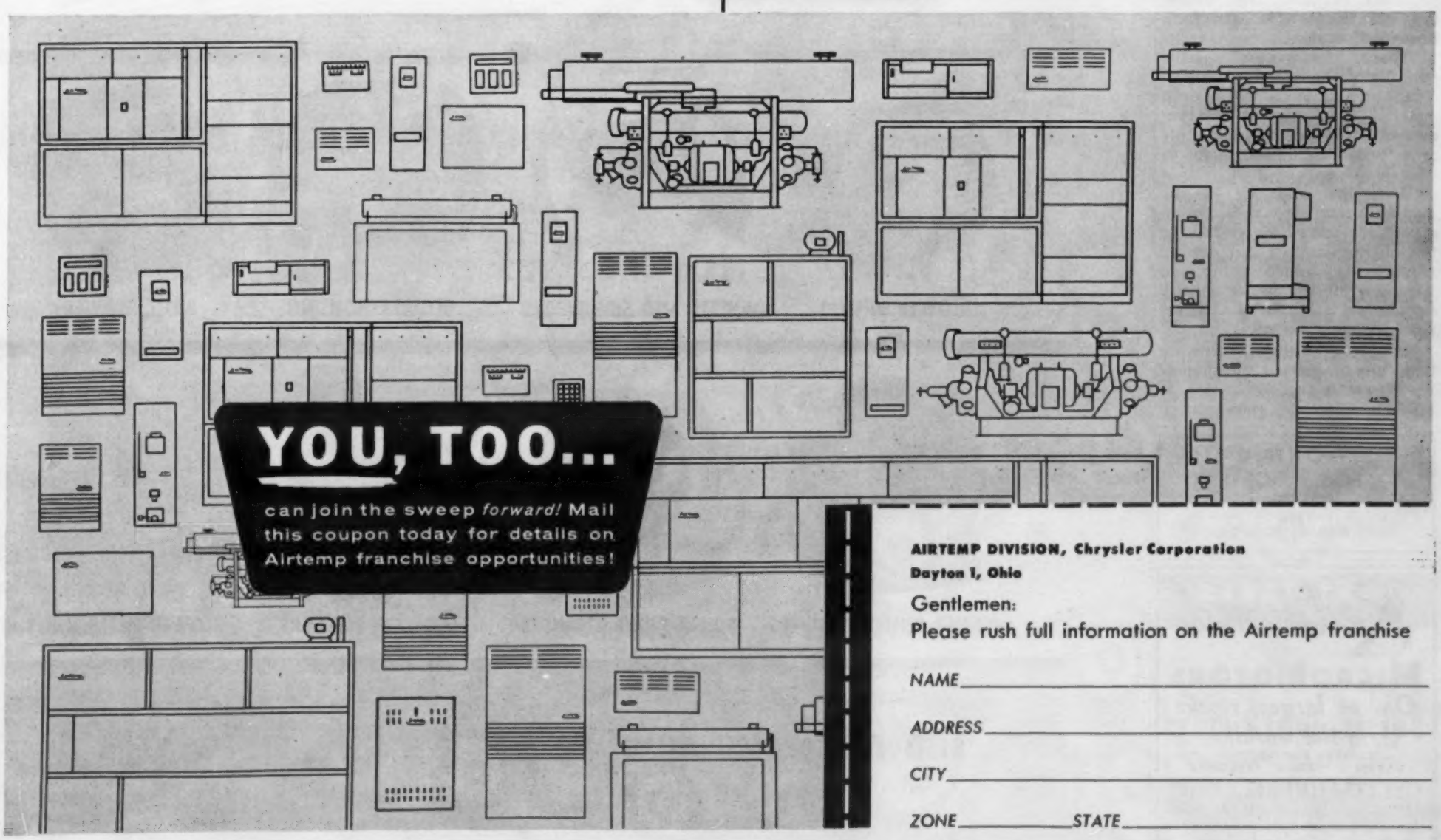
You don't miss sales due to an incomplete line... when you're an *Airtemp* air conditioning dealer. You can cool a room...a store...or a complete building. And whatever model is required—it's Chrysler-engineered for fast, economical installation and dependable, long-life operation. This means more sales —more profits for Airtemp dealers.

The BIGGEST line...Backed by Bigger-Than-Ever AIRTEMP Sales Help.

Big full-page, full-schedule advertising in top national magazines. *PLUS* important, new prospect campaigns—special new promotions—and a complete array of other tested, proven Airtemp merchandising aids!

Airtemp DIVISION CHRYSLER CORP

A Specialized Division of CHRYSLER CORPORATION devoted exclusively to AIR CONDITIONING



YOU, TOO...

can join the sweep *forward!* Mail this coupon today for details on Airtemp franchise opportunities!

AIRTEMP DIVISION, Chrysler Corporation
Dayton 1, Ohio

Gentlemen:
Please rush full information on the Airtemp franchise

*NAME*_____

*ADDRESS*_____

*CITY*_____

*ZONE*_____ *STATE*_____

For more information about products advertised on this page use Information Center, page 54.

Contractor Converts Gravity Hot Air Systems to Year-Round Units Without Removing Ducts or Replacing Registers, Grilles

By C. Dale Mericle

FORT WORTH, Texas—Converting gravity hot air systems to year-round residential air conditioning without pulling out ductwork or replacing the old-style registers and wooden return air grilles is not a common occurrence. In fact, some experts don't recommend even attempting it.

A veteran contractor here does it successfully, however, but his are not cheap installations made according to the "wet finger" method of load calculation. Rather, careful study precedes each job, and the cost is not the least for which some form of cooling could be applied, but it's apt to run considerably less than if comparable results were obtained with extensive ductwork and grille changes.

Satisfied customers would indicate that B. F. Rhinefort's approach is a sound one.

This particular type of market, admittedly, is limited and the contractors willing to cultivate it few, but Rhinefort's operation may have some points applicable to all who get into the existing home field of residential air conditioning.

And this is not a "cheaper by the dozen" activity, either, because this contractor makes comparatively few residential installations in any year. All are necessarily "custom" jobs, and Rhinefort works essentially on a time and material basis, which usually saves the customer money.

Reasons for Doing Custom Jobs

Point of retaining the old-style gravity registers and return air grilles and the existing ductwork (at least that within the stud space) is threefold, Rhinefort explains.

"These jobs generally have gone into the more expensive older homes built when even gravity type central heating systems were uncommon in this area, which isn't necessarily so very long ago.

"Extensive changes in the ductwork and the substitution of modern forced air grilles for the old registers would require much cutting and patching, and it's very difficult, if not usually impossible, to do a perfect patching job," he says.

Also, because these homes are tastefully decorated, the housewives would feel compelled to have a complete redecorating job to cover up the patching, he indicates. This would certainly pyramid the cost.

Even when, in the rare instance, it is necessary to *add* another air outlet or two in a large room, a careful workman can eliminate the need for any patching as a rule.

Another strong point for using the old registers without change is that this results in a minimum of disturbance and mess for the occupants during the actual work of conversion, Rhinefort points out.

Air distribution obtained with the old registers is quite satisfactory, Rhinefort insists. He tries to hold the face velocity at these registers to a maximum of 450 f.p.m., dropping in

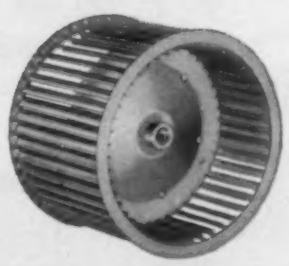
(Continued on next page)

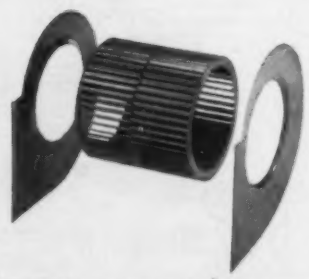
NO NEED to change old gravity registers to add air conditioning, contractor B. F. Rhinefort assures Mrs. Charles Hoffman, thus avoiding patching and probable redecorating of this beautiful living room.

LOOKING FOR A JOB?
CHECK THE CLASSIFIED ADS

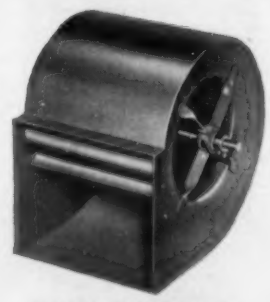
Redmond
MICROMOTORS
One of largest stocks in the world!
FACTORY DISTRIBUTORS
MARVIN L. "FERGIE" FERGESTAD
CYCLO-FREEZE CORP.
6318 Cambridge, Mpls. 16, Minn.
West 9-6794

"Static Pressure's going up--" when you


BLOWER WHEELS

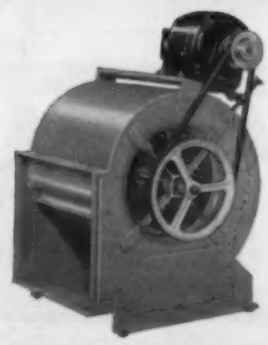

WHEELS AND SIDE PLATES

BLOWER HOUSING


BASIC BLOWERS

POWER CENTER BLOWERS

DIRECT DRIVE BLOWERS


SERIES "X" BLOWERS

BLOWER-FILTER UNITS

The name for quality and service since 1919

For more information about products advertised on this page use Information Center, page 54.

Converting Gravity Systems--

(Continued from preceding page)

some instances as low as 380 f.p.m.

One of his "secrets," he says, is the use of two-speed motors for driving the blowers. With such motors he can easily arrange for the greater air flow required for cooling than for heating. This changeover is usually accomplished at the thermostat.

With a Minneapolis-Honeywell T8-30C winter-summer thermostat, for example, the wiring can be such that throwing the switch on the thermostat from the summer to winter setting simultaneously changes the blower motor from high to low speed.

Gas Furnace Cycles On 1 to 5 Ratio

Incidentally, for heating, Rhinefort aims at having the gas furnace cycle on a 1 to 5 ratio, that is, one minute on and five minutes off, in the coldest weather with the blower cutting in at around 125° and out at 100° to achieve CAC operation.

CHANGEOVER from cooling to heating in the Hoffman residence is done simply at the thermostat. Note old style return air intake.

REMOTE air-cooled Airtemp condensing unit is installed in back of the Hoffman residence in Fort Worth.

"We're trying, of course, to get as even heating as possible," he explains. "We also urge the owners not to lower the thermostat setting overnight, or, if they insist on doing so, not to move it more than 5° below the daytime setting."

In some instances when converting the gravity plants to year-round systems, Rhinefort has installed gas-fired hot-water boilers, but in other cases the original direct-fired unit is retained.

Builds Air Handling Unit

Typical of these conversion jobs is one Rhinefort made for Charles Hoffman, Fort Worth lease broker. Here a hot water boiler was installed for heating and a 7½-hp. Airtemp air-cooled remote compressor-condenser package for cooling. The latter is located in the back yard.

For this installation, as for most of his jobs, Rhinefort built up his own air-handling unit. By building his own, Rhinefort claims he can get exactly the combination of coil, expansion valve, and blower he wants in the shape required to fit the particular application involved. Casing for the air unit is built locally to Rhinefort's specifications. And the total cost, he says, is no more and often less than a factory-built air unit.

Unit for the Hoffman residence has two blowers.

Careful planning that went into the Hoffman job is typical of that needed if these conversion installations are to be successful, Rhinefort says.

"I spent one entire day studying the house and making load calculations," he recalls.

Construction of the house is important, likewise its orientation ("too often ignored," Rhinefort comments). Shading from trees and adjacent buildings, living habits of the occupants, and amount of insulation, especially in the attic, also are among the things he looks for.

He insists, for example, on having 6 in. of insulation in the attic.

"If there are only 4 in. pres-

(Concluded on next page)

face these problems

A *Smaller*

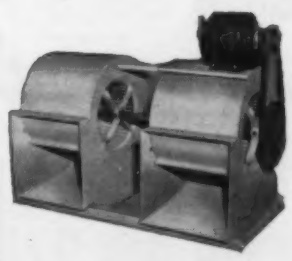
(instead of a larger*)

BRUNDAGE BLOWER

may be your answer

See how this can work for you at the International Heating and Air Conditioning Exposition . . . BOOTH 615

DUCT BLOWERS



TWIN BLOWERS

BLOWER-EXHAUSTERS

UNIVERSAL BLOWERS

BRUNDAGE / THE BRUNDAGE COMPANY
Kalamazoo, Michigan
Phone Fireside 2-0251

PRESSTITE
#165 Cork Insulation Tape

Anti-Sweat Pipe Wrapping

Stops Drip!

See your wholesaler or WRITE

PRESSTITE-KEYSTONE
Engineering Products
COMPANY

39th & Chouteau, St. Louis, Mo.

Converting Gravity Systems--

(Concluded from preceding page)

ent, we add 2 in.," Rhinefort says.

All the study and planning that precedes an installation is more than equaled by the time spent on balancing and adjusting the system after the actual work of installing it is completed, this contractor also points out.

Proper balancing of air flow and correct setting of controls to achieve desired results often is the difference between a good installation and one that's less than satisfactory, he comments.

"We always test our jobs with a recording thermometer and humidity indicator," he says, "and we make changes in the control settings until we get steady readings on the charts."

Rhinefort is a firm believer in the use of recording instruments and accurately calibrated gauges of all types not only to adjust his own installations but for service work as well.

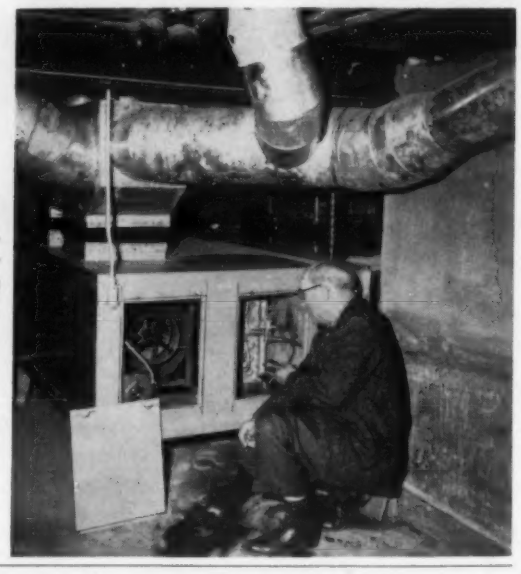
No Guessing at Air Delivery

There's no guessing, for example, at how much air is being delivered through a particular register. Rhinefort measures it with an extremely sensitive instrument. Is the blower or motor running fast enough? A tachometer shows the exact speed.

"Our most useful instruments are probably the combination temperature-humidity recorder and a running time recorder," he believes.

"With the former not only can we get an accurate check on the performance of a system but we can offer definite proof of its performance to the owner," he explains.

And Rhinefort doesn't waste any time arguing with the chronic complainer who says "the thing runs all night." He simply attaches the running time recorder, which invariably proves otherwise.



AIR HANDLING unit occupies space of former gravity furnace. Note old "insulation" left on duct.

All these instruments represent quite an investment, he's quick to admit, but properly used they pay for themselves in a short time.

Does Corrective Work

"We do a lot of corrective work," Rhinefort explains, "straightening out jobs that for some reason or other were improperly installed or serviced by others. With our instruments, especially the recorders, we can diagnose complaints accurately and usually in a comparatively short time. Our success on jobs like these often lead to service contracts and installation work for satisfied customers.

Lennox Catalogs Full Heating, Cooling Line

MARSHALLTOWN, Iowa — Heating and air conditioning equipment manufactured by Lennox Industries, Inc., will be described in detail in the "Architectural and Light-Construction Files" of the new Sweets catalog, Lennox announced.

According to John W. Norris, president of Lennox, every effort has been made to detail the equipment thoroughly and to provide all the information that the architect or builder could desire. Especially useful are plant and elevation scale drawings of all the Lennox units, he said.

This type of coverage of the entire Lennox line, claimed to be the most extensive in the field, required a 32-page catalog section.

Ventilation Specialist Firm To Serve Industry

PLAINFIELD, N. J.—Formation of a new company, the Power Line Fan Co., to serve industry through ventilation specialists, has been announced here.

The new, "completely integrated" organization is a division of Chelsea Products, Inc., manufacturer of ventilating equipment.

A broad line including low silhouette "dome" type roof and wall ventilators, penthouse units, centrifugal roof ventilators and utility blowers, air blasters and fan coolers, in addition to panel and tubaxial general and pressure duty exhaust fans, will be immediately available.

Office Bldg. To Be Cooled

SARASOTA, Fla.—B. & B. Investment & Security Co. has announced plans for an air conditioned, four-story office building on Osprey Ave.

The new office building, largest in Sarasota, would have seven shops on the main floor and about 90 offices.

WITH NEW GIBSON **RANCHO**

Air-cooled "PACKAGED" Air Conditioners

A great new market opens wide this year – central air conditioning for even modest homes *without* existing ductwork–and Gibson makes it easier for you to get your share.

Gibson Rancho units are lightweight, compact and easy to install. "Packaged" installation includes 2 or 3 ton Gibson Rancho unit, pre-fab fiberglass ductwork, louvres, grilles, diffusers, thermostat.

Temperature Experts for 80 Years

RESIDENTIAL AIR CONDITIONING
2-3-5 ton units • Air- and water-cooled • New Rancho units with pre-fab ductwork • Remote air-cooled units 2 to 10 tons • Packaged water-cooled units

COMMERCIAL AIR CONDITIONING
Packaged units 2 to 40 tons

DOMESTIC HEATING
Gas- and oil-fired units • Exclusive EVEN-FLO Vari-flame • Complete line Hi- and Lo-Boys

INDUSTRIAL AIR CONDITIONING
Packaged direct expansion systems to 40 tons • Packaged chillers • Water-to-air, air-to-air heat pumps

GIBSON RANCHO GOES ANYWHERE!

SALES-MAKING FEATURES

- Exclusive new Turb-O-Tube heat exchanger increases cooling speed and capacity—saves electricity.
- Cools and dehumidifies. • No water, no plumbing, no costly wiring.
- 5-Year Guarantee. • Low cost—less than two window units.
- Qualifies for easy Title I FHA financing.

Call your Gibson distributor or write direct to Gibson.

Gibson® DIVISION OF HUPP CORPORATION

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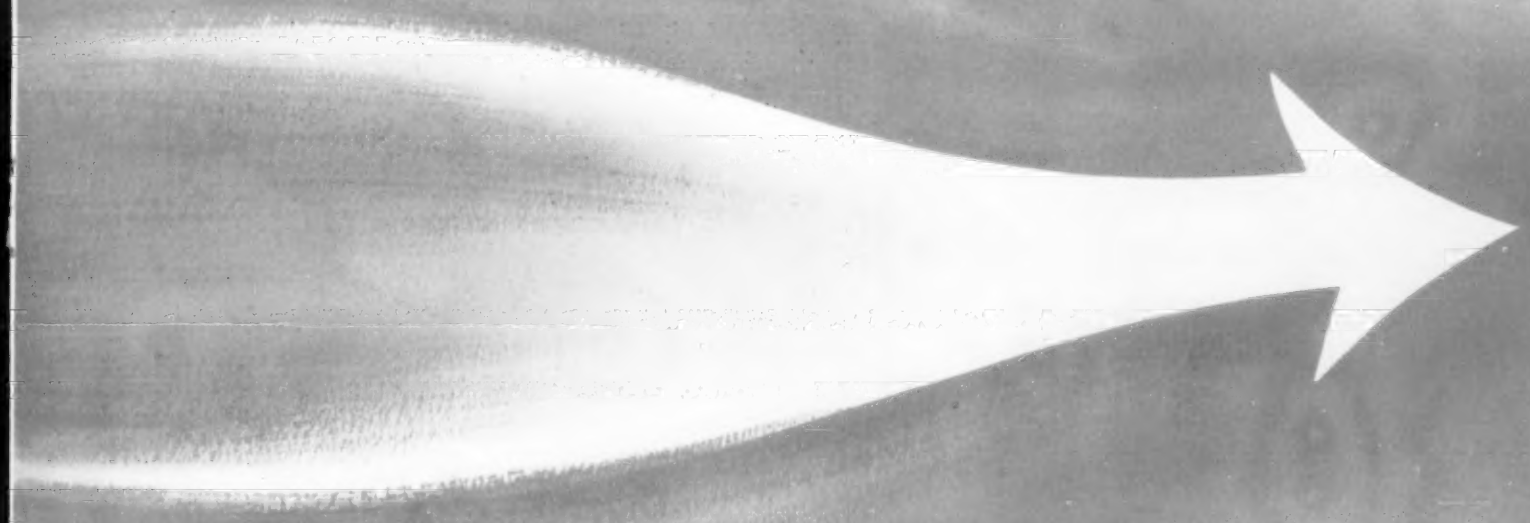
There's lasting beauty,
quality and economy in
ROOM
AIR CONDITIONER
PARTS



fabricated and finished by
REYNOLDS
ALUMINUM FABRICATING
SERVICE

Why not
Changeable Aluminum
Air Conditioner Grilles?
Fabricated and
Color Anodized by
Reynolds Aluminum
Fabricating Service.

A New Sales Idea . . .
A New Style Concept in
ROOM AIR CONDITIONERS

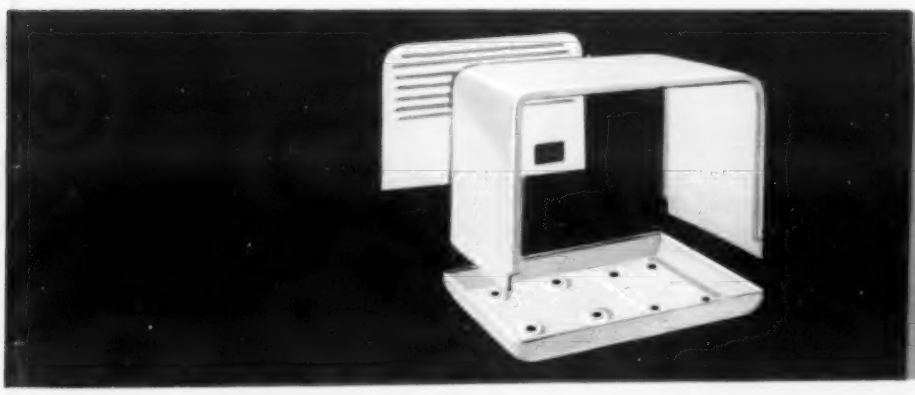
COLOR ANODIZED ALUMINUM GRILLES

. . . changeable or permanent!

Now you can build the strongest feature story around beautiful grilles in colors that match or harmonize with finest room interiors. Rich golds, coppers, blues, greens and many other anodized colors give your designers new freedom . . . give your room air conditioners new sales appeal.

And imagine this! Reynolds makes it easy for you to offer a wide variety of *changeable* color anodized grilles. Perforated aluminum panels and extruded aluminum frames in matching or contrasting colors—that's all it takes. This is like adding more models to your line—to your dealers' stocks—without actually producing additional models. The result? More flexibility per unit . . . more variety in your line . . . increased sales appeal . . . balanced dealer inventories . . . greater sales—all at a minimum cost!

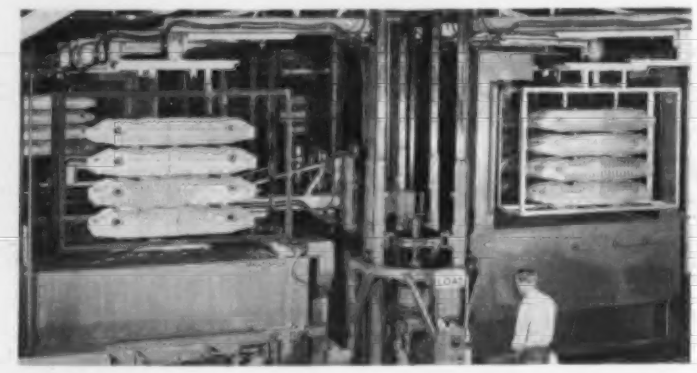
For grilles—both permanent or changeable—and for trim and cabinets, consider strong, lightweight, rustproof aluminum fabricated and color anodized by Reynolds.



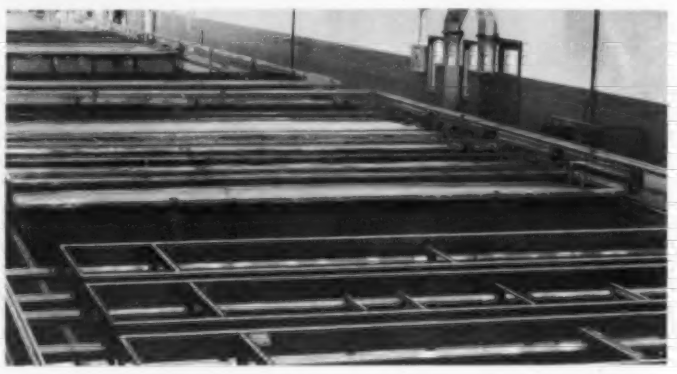
ALUMINUM PROVIDES ALL-WEATHER PROTECTION TO EXPOSED PARTS

Aluminum also does more than lend lasting beauty to room air conditioners. Aluminum's resistance to rust and corrosion assures all-weather protection to shells, frames and other parts exposed to elements outside the home . . . prevents unsightly streaking of sidewalls. Gives you another important sales feature.

Here's why it pays to rely on
REYNOLDS ALUMINUM FABRICATING SERVICE
for production of your
Room Air Conditioner Parts.



This new Reynolds automatic aluminum finishing system can finish mixed sizes and types of appliance parts and chemically brighten or anodize them in different colors—and can handle several different jobs at the same time. An automatic coding system establishes the individual finishing specifications for each job.



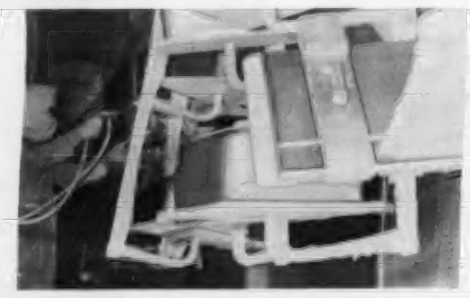
This new Reynolds anodizing installation can handle parts ranging from small appliance trim parts up to parts 24′ long, 12′ high and 4′ wide. This half-block long system is another new addition to Reynolds multi-million dollar finishing facilities investment.

"On call" to the Appliance Industry... vast Reynolds fabricating and finishing facilities to meet your needs

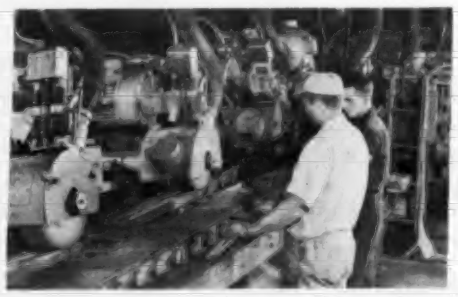
From start to "finish" on appliance parts and trim, Reynolds has more to offer. For example: *Vast fabricating facilities* with over 200 pieces of major production equipment in two plants alone plus finishing facilities unsurpassed anywhere. *Quality control* from mine to finished part. *Experienced design* and *engineering service.*

These Reynolds strong points add up to greater sales appeal, quality and economy for appliance manufacturers. Sales appeal with gleaming *clear* or *color anodized* and mechanical, chemical and painted finishes. Quality stemming from quality control plus technological know-how in producing and fabricating aluminum. Economy because of the tremendous variety of most modern automatic fabricating and finishing equipment.

For full details on Reynolds fabricating and finishing facilities, contact your nearest Reynolds Branch Office or write *Reynolds Aluminum Fabricating Service, 2005 South Ninth Street, Louisville 1, Kentucky.*



Reynolds can paint entire parts a solid color, mask and paint or do paint filling in combination with mechanical finishing to supply most desired textures or highlighting effects.



Part of a battery of Reynolds new high speed buffing equipment used here on molding strips. Scratch-brushing, satin finishing, embossing and other mechanical finishes are also available.

Part of a battery of high speed coil fed presses at Reynolds producing at the high rate necessary to meet appliance industry requirements. All types of presses are available at Reynolds.

The Finest Products Made with Aluminum are made with REYNOLDS ALUMINUM

REYNOLDS ALUMINUM FABRICATING SERVICE

Blanking • Embossing • Stamping • Drawing • Riveting • Forming
Roll Shaping • Tube Bending • Welding • Brazing • Finishing

Projected Sales Refrigerated Room Air Conditioning Units 1953 Through 1960 Actual by Years Through 1956

	1953	1954	1955	1956	1957	1958	1959	1960
U. S. Total (TP&L Projection)	700,000†	1,000,000†	1,250,000†	1,500,000†	1,700,000†	1,875,000†	2,050,000†	2,250,000†
Actual Sales	754,000	1,000,000	1,259,000	1,500,000	....	....	....	....
"Texas Bright Spot" Trade Territory	308,000*	440,000*	562,500*	675,000†	765,000†	825,000†	881,500†	900,000†

*Reported sales. †Projected.

Projected Sales of Central and Packaged Unit Air Conditioners (Less Than 10 Tons Capacity) 1956 Through 1960

	1956	1957	1958	1959	1960
U. S. Total	125,000	170,000	225,000	255,000	280,000
Actual Sales	125,700	....	....	....	....
"Texas Bright Spot" Trade Territory	56,250	76,500	103,500	117,300	128,800
Percent of U. S. Total†	45%	45%	46%	46%	46%
Actual	45%*	....	....	....	....

*Reported Sales. †Projected.

1960 Predictions: 2,250,000 Room Unit Sales; 280,000 Central, Packaged

DALLAS—The forecasting of air conditioning sales totals has again proved to be a relatively easy task for J. Cal Courtney, industrial consultant for Texas Power & Light Co.

As during the past four years, Courtney's forecast for 1956 (projected in 1952), has proved almost phenomenally correct. He foresaw sales of 1,500,000 refrigerated room air conditioning units and 125,000 central units of under 10 tons capacity. Table 1 and 2 show actual sales of 1,500,000 room and 125,000 packaged units.

"Five years ago Texas Power & Light Co. published an air conditioning survey that was designed to outline the advantage of locating the manufacturing plants in the closest proximity to the markets," Courtney states.

"In Texas alone new plants have been built or enlarged. In the state are located plants operated by General Electric, Carrier, the Mathes Co., Lennox, and Friedrich."

Courtney admits he is lucky to some degree in his predictions of sales. He said that in 1952, when he made his projections, he wouldn't have been surprised to miss the total sales by 5%; however, the Texan has never been more than 1% away from actual sales.

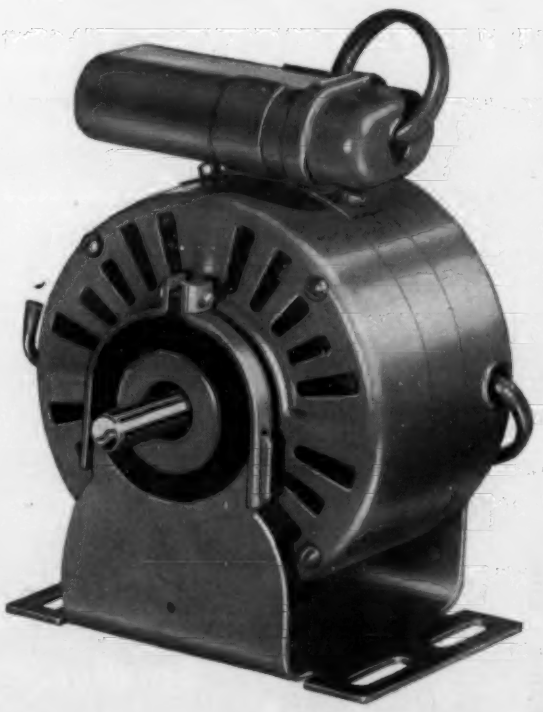
At the time of the first study in 1952, some industry leaders felt he was being overly optimistic regarding sales and others thought more units would be sold than he predicted.

Courtney explained that the basic figures regarding the distribution and sale of units are compiled in Texas Power & Light's Air Conditioning Sales and Distribution Study.

MARCO continues to set the pace after 10 years of leadership

MARCO MOTORS FOR 1958

AGAIN PROVE 3-WAY SUPERIORITY



IN SIZE
Use Less Space—Only 4⅝" in Diameter

IN PERFORMANCE
Lower Current Consumption—Permanent Split Capacitor—1/50th to 1/5th hp.

IN SPEED RANGE
Wide Speed Range Possible with 2-4-6-8 Pole Designs

in the 8 years of the industry's greatest growth

MARCO MOTORS POWERED MORE AIR CONDITIONERS THAN ANY OTHER MAKE

because of PROVEN QUALITY — GUARANTEED DELIVERY

and MARCO still out performs the industry in *QUALITY* and *DELIVERY*

MARCO INDUSTRIES, INC.

WOMELSDORF, PENNSYLVANIA

For more information about products advertised on this page use Information Center, page 54.

Florida ACRA

Warranty Certificate Sets Standard for 'Free Service' On Refrigeration Units for Cooperating Contractors

MIAMI, Fla.—A service warranty certificate that establishes a common standard of "free service" on refrigeration equipment for all cooperating contractors is being used successfully by the Air Conditioning & Refrigerating Association of Florida, Inc.

The certificate was developed to maintain a specific standard of "free service" for the purchaser's protection, declares Armand Cowan, president of Stuart Cooling Corp. of Florida, and one of the trio of Miami contractors who drew it up.

The other two members of the committee that prepared the certificate are Sam L. Hamilton of Sam L. Hamilton, Inc., and Robert Hebb of Central Roofing Co.

'CUSTOMER AT LOSS AS TO BEST DEAL'

"When various contractors offered varied types of 'free service' to a prospective customer," Cowan explained, "the customer was at a loss as to which company might actually be giving the best deal.

"Some contractors would give less service, most would give exactly what is incorporated in this agreement, others would give one year without monthly maintenance checks, others would give one year with monthly maintenance checks.

"With this arrangement, all members of A.C.R.A. are offering a high caliber of service.

"Each A.C.R.A. member includes this service warranty certificate with his proposal.

"Several architects and consulting engineers, who formerly put a very lengthy paragraph in their specifications regarding service, now simply state that service is performed in accordance with the A.C.R.A. service warranty certificate."

The service standards printed in this certificate and subscribed to by A.C.R.A. members are:

EXPLAINS SERVICE STANDARDS

"Machinery: To extend to the purchaser all standard factory warranties against defects which shall be for a minimum of one year, and these factory warranties shall be presented to the purchaser, by the contractor, upon completion of this installation and both parties shall be bound by the terms and conditions of said warranties.

"Extended Coverage: Where standard factory warranties for any component part(s) of this system are for periods in excess of one year, this warranty shall be presented to the purchaser, by the contractor, upon completion of this installation and both parties shall be bound by the terms and conditions of said warranty.

"Other Materials and Workmanship are guaranteed for one year from the time the system is put in operation, and in case any machinery, material, or workmanship proves defective the contractor's liability shall be limited to repairing or correcting such defects.

"Service: Contractor shall provide free service for 90 days from start of operation and during that time, to make three inspections and at each inspection, to perform the services listed below.

"1. Inspect for refrigerant leaks.
"2. Repair refrigerant leaks.
"3. Inspect air filters.
"4. Clean cooling towers.
"5. Clean drip pans.
"6. Clean air-cooled condensers.
"7. Clean condensing units.
"8. Clean all strainers.
"9. Adjust tension on all belts.
"10. Lubricate all moving parts.
"11. Check condensing, suction, and oil pressure.
"12. Purge air from systems.
"13. Check refrigerant.
"14. Add refrigerant to systems as necessary.
"15. Inspect and adjust temperature controls.
"16. Inspect and adjust safety controls.
"17. Inspect and adjust all valves.
"18. Adjust water regulating valve.
"19. Check operation of refrigerant controls.
"20. Supply emergency service between inspections.

"Filters: Contractor shall furnish only the original filters.

"All of the above warranties are made with the understanding that no disarrangement of or injury to the machinery or materials be caused by incompetency or want of attention and that the machinery herein described shall not be tampered with or repaired by mechanics or persons other than those approved by the contractor and the factory the contractor represents."

$4,870,000 Net Sales Reported by Dunham-Bush for First Fiscal Quarter

WEST HARTFORD, Conn.—In a report to Dunham-Bush stockholders covering the first quarter of the company's fiscal year from Oct. 1, 1956 through Dec, 31, 1956, Cecil Boling, president, revealed that net sales totalled $4,870,000.

Net earnings were $274,000 or $.28 per common share after preferred dividends.

Boling pointed out that, due to differences in accounting procedures used before consolidation, there is no direct basis on which to compare earnings for the same period last year.

He stated, however, that "indications are that our earnings are approximately the same as last year, even with the elimination of about $1,100,000 of defense business."

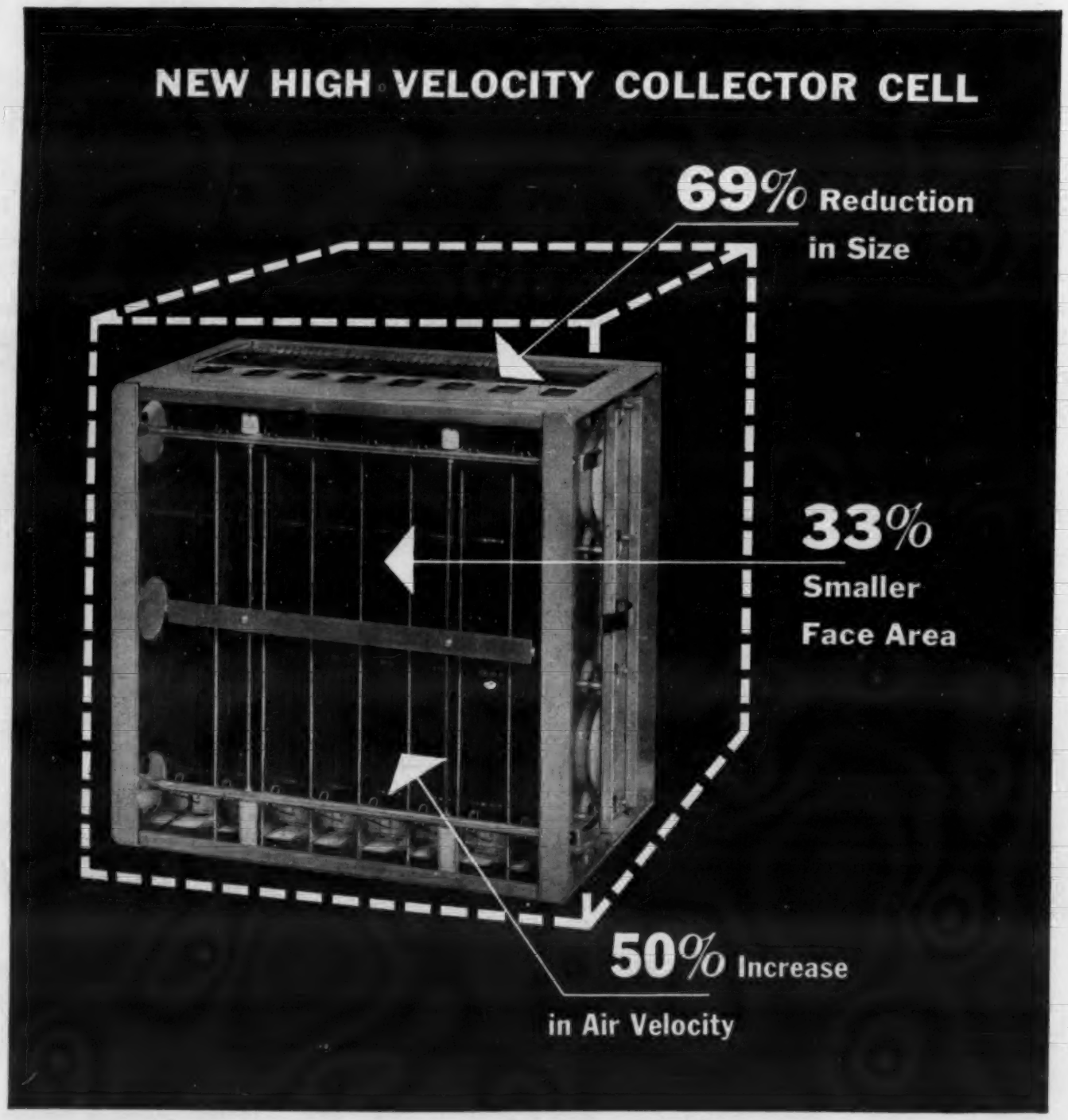
The decrease in sales from a similar period last year was attributed to the fact that the company's Michigan City plant was completing a defense contract during the first quarter last year.

No defense work is included in this year's figures.

Reporting on the progress of integration following the consolidation of C. A. Dunham Co. and Bush Mfg. Co., Boling stated that "the production of air conditioning and refrigeration equipment at Michigan City, Ind.; Marshalltown, Iowa; and Toronto, Ont., Can. is progressing nicely, and shipments of cooling equipment from these plants should be helpful in expanding sales during the balance of this year."

NOW! Precipitron® prices reduced

ON NEW MODEL WESTINGHOUSE COSTLY TO OWN AND OPERATE



For more information about products advertised on this page use Information Center, page 54.

Inside Dope

By GEORGE F. TAUBENECK

(Concluded from Page 1, Col. 1)

of electricity and the automobile, no other industry has had such profound effect on our living standards and national growth.

Muddy Kitchen Tracks

For the education of younger readers, let it be said that 40 years ago there was a national institution known as the iceman. Every day he drove his horse and wagon around city streets, delivering 25, 50, and 100-pound cakes of ice door to door. These blocks of ice, sonny, were put into wooden iceboxes, where they cooled Mama's meat and vegetables and milk.

At first this ice was sawed out of frozen ponds in winter, and stored in sawdust. Later, pioneer manufacturers like York and Frick and Worthington invented huge ice-making machines to replace the ponds.

Nevertheless, that iceman who delivered the stuff naturally had wet feet all the time. He muddied up a lot of kitchen floors, and angered housewives coast to coast. But what could they do?

Never underestimate the power of a woman! Mrs. E. T. Williams, whose husband was an inventor, said something like this (if we know wives): "Look, you big lummox, get off your big fat can and invent something useful for a change. Whip me up an icebox that doesn't use ice."

So he did. He made a miniature model of the ice-making machine, set it atop an icebox and hitched it to wet coils which formed, in effect, a mechanical block of ice. Then he waited for customers to beat a path to his door to buy his "better mousetrap."

They didn't, of course. But word of his contraption got around. Far as Detroit, in fact, where a temperamental automotive engineer named Replogle had just jammed his boss's straw hat over the latter's eyes and walked out of the factory.

"Who needs automobiles?" he muttered to himself. "I'll make me some of those mechanical refrigerators that feller Williams dreamed up last year" (1912).

Other people—Ed Copeland, Nat Wales, Fred Heideman, Arnold Goss, Fred Wolf, Henry Joy—got interested in this project, and somewhere around 1914 the Nizer and Isko companies—forerunners of Kelvinator—were born.

P.S.: There's a lot of argument about who did what to whom in those early times, so we can speak freely from now on and hitherto—"without fear of successful contradiction." As one of the most profound "Brains" of our times (George Bernard Shaw) put it: "History is agreed-upon Fiction." This stuff isn't history because old timers disagree about details of these stories. But it isn't fiction, either.

Durant, Kettering, Frigidaire, Dennedy

Almost simultaneously jaunty Richard Durant, the promoter who was putting General Motors together out of a few odd bits and pieces such as Buick, Chevrolet, Delco, and Hyatt, lost his temper when an ice man didn't show up. Durant had arrived home with a few cronies and he wanted some drinks. No ice.

"Mr. Durant, sir," quavered a mild-mannered engineer named Howard Dennedy, "I hear tell a couple of fellers are monkeying around with a mechanical refrigerator."

"Get me one quick," said Durant. So Howard bought a half-baked sample from a fellow named Mellows, and the Guardian Refrigerator Co. was launched.

Always an ebullient optimist, Durant ordered a thousand refrigerators to be made just like the sample. When the thousand were tested they didn't work.

Testily, Richard retained top consulting engineers to find out why. They reported that the batch of one thousand were exactly like the sample. True, they didn't work. *But neither did the sample.* Those consultants failed to suggest a remedy.

Durant then called on the head of General Motors' engineering staff to lend him a bright boy who could find out WHY NOT?

This genius discovered that the Guardians refrigerated almost everywhere but in the right place—the evaporator.

So John Replogle was retained, and invented the float valve evaporator which transformed a miscarriage into a lusty child.

Later the Guardian project was moved to Dayton, where a young genius named Kettering could give it a go. Kettering, or somebody, renamed it Frigidaire.

Servel got into the picture, a bit later, and livened up the show because it was then—as now—the darling of public utilities. E. T. Williams, incidentally, was retained by Servel.

Howard Dennedy moved to Evansville and joined Servel, a bit later—taking along some blueprints, which didn't endear him to former associates at Guardian and Kelvinator.

Not so many years afterward Dennedy got sore, left Servel, walked down the street to the Sunbeam locomotive headlight company (which wasn't making any railroad headlights or anything else then because of the Depression) and sold them on the idea of making compressors.

With a great stroke of luck, Sunbeam found a wonderful customer for Dennedy's refrigeration compressors in Sears Roebuck—which turned out to be a lucky bonanza for all concerned.

Dennedy, who got a royalty on each compressor, was the sole pioneer in our industry who became wealthy.

From Refrigerators to Appliances

Associated with Kettering in Dayton was a sales genius named Dick Grant, who'd learned his trade at the knees of fabulous John Patterson (for details, see our book, "One Foot in the Door"). Dick sold a helluva lot of refrigerators. So did Kelvinator. And Servel.

General Electric (some fellows at the Lamp Works were restless) got into the act. Likewise Westinghouse and Norge, along with several hundred humpty-dumpties who didn't last long.

General Electric and Westinghouse contributed something new—the hermetically sealed compressor, with its concomitant long guarantee.

The Depression was on when the household refrigerator got going real good, and thousands

(Continued on next page)

25%...Capacity Increased 50%

ELECTRONIC AIR CLEANER...NOW LESS THAN AUTOMATIC MECHANICAL FILTERS

5 MORE WAYS YOU SAVE:

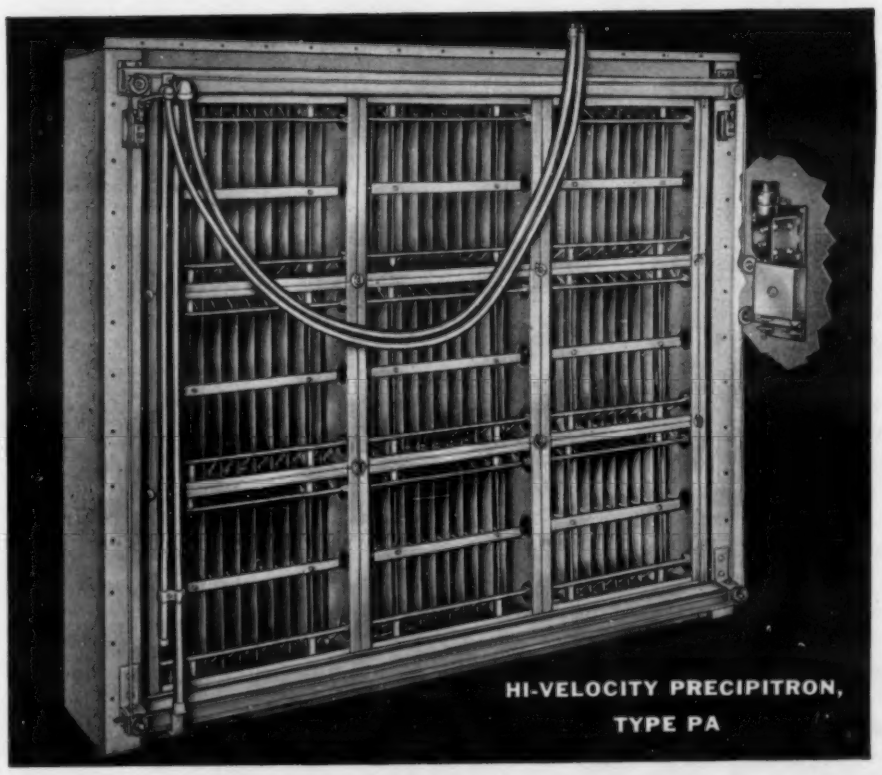
1. New PRECIPITRON cells now available in same sizes as ordinary panel filters!

2. Minimum maintenance . . . completely automatic washing . . . no filters to store, clean, or replace.

3. Reduced installation costs . . . smaller size, less duct work, no high voltage wiring!

4. Now cold water adhesive eliminates need for hot water washing.

5. New simplified design provides easy, rapid and economical field assembly!



HI-VELOCITY PRECIPITRON, TYPE PA

Now . . . with this outstanding product advance and price reduction, you can replace your present mechanical filtering system with Westinghouse PRECIPITRON, and enjoy more efficient air cleaning — at no extra cost!

Call your nearest Sturtevant Division Sales Engineer about this newest development in Electronic Air Cleaning, or write to Westinghouse Electric Corporation, Sturtevant Division, Hyde Park, Boston 36, Massachusetts.

To be shown for the first time at the International Heating and Air Conditioning Exposition, Chicago, February 25th.

Westinghouse Booths #902, #1003, #1007

WESTINGHOUSE AIR CLEANING

YOU CAN BE SURE...IF IT'S Westinghouse

J-80612

Inside Dope

By GEORGE F. TAUBENECK

(Continued from preceding page)

upon thousands of men were happy to take jobs ringing doorbells and selling refrigerators on commission.

It got to be a big business in a hurry, thanks to Specialty Salesmanship.

Somebody at General Electric thereupon got another bright idea in the middle 1930's.

"Look, Sam," he said to a fellow Vice President who was crowding him, "we've had this electric range kicking around for years, but it's still a Nothing. Maybe these refrigerator hotshots can sell it."

They could and did. While the Vice Presidents were breathing hard down each other's necks the refrigerator dealers were loaded up with washing machines, freezers, vacuum cleaners, radios, and whatnot. Before they could turn around they were in the appliance business—which hadn't existed before.

Without those trained refrigerator specialty salesmen, as a matter of fact, many other subsequent major appliances might never have got off the ground. (And that goes for packaged air conditioners.)

Economic Effect Astounding

That iceless icebox led the way to a tremendous groundswell of economic activity and employment in these United States of America.

It sparked a boom which hasn't let up yet.

Refrigerator-born labor-saving appliances freed America's housewives from "blue Monday" and kitchen drudgery to such an extent that millions of women could go to work in our factories in the 1940's, and thus help win World War II.

Those same freed women still are working (and so are their daughters) in American industry. Without them the United States couldn't have expanded commercially nearly so rapidly as it has recently. In themselves these women comprise a sort of industrial revolution.

Also, the refrigeration, air conditioning, and allied appliance business is responsible for employing hordes of people in selling and servicing these dinguses, and *is the reason for existence* for thousands of small business enterprises—from dealers and contractors to manufacturers of component parts.

See what can happen when a few individuals act a bit screwy?

'Sumpin's Gotta Be Did'

Prior to those exciting early days of our industry an irate printer blew his stack because hot humid weather was ruining his work. The ink wouldn't dry fast enough, and his printed sheets were sticking together in a horrible mess. He spoke bitterly to his contractor friend, Willis Carrier, who was a mathematical and engineering genius on the side.

"Sumpin's gotta be did about this," the lithographer exploded to Mr. Carrier.

By happenstance Willis Carrier had been watching the progress of commercial refrigeration, which had spread out with cabinets and food display cases for grocery stores and meat markets. He had seen those commercial refrigeration cases in which a fan blew air over cold coils.

"Eureka!" exclaimed Mr. Carrier. "Why not blow cold air over the printing presses and lower the humidity?"

This idea worked, of course, and Mr. Carrier called it "air conditioning." The rest of that story you know—or should.

Air conditioning probably will be the next Giant Industry. And it's in existence today partly because an iceman had muddy feet many long years ago!

How About That!

Meanwhile, back at the ranch.

Only it wasn't a ranch. It was a shivery cold meteorological station 'way up in Labrador, where a lonely young "weather man" named Clarence Birdseye had a lot of time on his hands.

For food he had to depend on canned goods and cold storage meats shipped to him at long intervals, plus fish he could snare. It struck him as odd that the cold storage stuff was tasteless, whereas the fish he caught remained "fresh" indefinitely if parked outside his hut in the sub-zero weather.

"How about that?" he said to himself.

"I know what about it," he answered himself months later, after reading a book or two on cold storage methods. "They don't freeze the stuff fast enough. They could freeze meats and vegetables instantly—and keep the flavor indefinitely—if they used below-zero temperatures, thus preserving cellular structure and flavor." (Being a scientist, he really did talk like that.)

So he took his idea to General Foods, and they paid him $14 million for it—or $17 million, depending on who is telling the story.

Result: a rapidly multiplying variety of frozen foods, TV dinners, more women with time on their hands to work in offices and in factories, subsequent expansion of the labor force and higher family incomes, orange juice for everyone, happier farmers and grocers and commercial refrigeration manufacturers, dealers, jobbers—in short, another revolution in living habits!

High School Kids and the Vacuum Salesmen

Now what's with those high school physics students mentioned earlier?

(Concluded on next page)

BOOST YOUR BUSINESS BY BECOMING A FRANCHISED YORK ASSOCIATE* NOW!

- **In every industry there is a leader whose product becomes the measure by which the merit of all others is gauged.**
- **Public estimation decides its worth. It must be earned by years of performance.**
- **As it is for 130 Franchised York Associates today, York's reputation will be your customers' unwritten guarantee of leadership.**

In order to keep pace with the ever increasing demands of rapidly widening fields of application in the medium capacities, York is expanding its Industrial Sales Organization to include a limited number of *Franchised Associates* who are prepared to take advantage of the profit possibilities offered by AIR CONDITIONING, REFRIGERATION, or both.

Ability to meet the exacting demands of industry for the past 75 years is York's unwritten guarantee . . . a guarantee of quality and dependability behind every piece of York equipment.

That's why York Refrigeration and Air Conditioning are the universal preference and bear the unqualified endorsement of users everywhere . . . in gigantic cold storage and packing houses as well as in the retail market . . . from the largest dairy and ice cream plants to the smallest dealer in dairy products . . . in the mammoth hotel, where food and comfort are provided for thousands, as well as in the smallest restaurant . . . from the vast department store down to the smallest specialty shop . . . in steamship and highway transportation . . . in hundreds of industrial processes . . . wherever absolute dependability is the first consideration.

The art of building for this exacting duty is not learned in a day. It can be acquired only by systematic and cumulative progress . . . invention . . . design . . . research . . . development . . . backed by a steady faith in public judgment and the confidence that greater excellence brings its own reward.

Unparalleled service, too, is a tradition with York. Throughout the years York has developed a field engineering organization in which the user of York equipment can concentrate full responsibility for the overall design and proper functioning of the completed plant . . . an organization reinforced with a wealth of data acquired in its many years of growth . . . an organization dedicated to the application of efficient, trouble-free refrigeration and air conditioning to every commercial and industrial need, large or small. A rich background.

York offers *Franchised Associates* a complete line, engineered and built to meet today's demands . . . efficient . . . flexible . . . sturdy. Because of the wide range of capacities in which it is available there is no handicap in selling York Industrial equipment. The correct system . . . not a makeshift . . . can be offered for every installation. As a *Franchised Associate,* you can build good will and expanding business with York . . . a name which is recognized as a symbol of sound engineering, intensive research and integrity in manufacture.

For full information on your opportunities as a York *Franchised Associate,* contact the York Office listed in the Yellow Pages of your Telephone Book or write York Corporation, a Subsidiary of Borg-Warner Corporation, York, Pennsylvania.

*Contracting dealer

York refrigeration air conditioning — YORK B-W

the quality name in air conditioning and refrigeration

HEADQUARTERS FOR MECHANICAL COOLING SINCE 1885

YORK CORPORATION

SUBSIDIARY OF BORG-WARNER CORPORATION

For more information about products advertised on this page use Information Center, page 54.

Inside Dope

By GEORGE F. TAUBENECK

(Concluded from preceding page)

Well, they were horsing around in a high school chemistry laboratory in Sweden. One youngster was named Munters—the other Von Platen.

In that Swedish high school laboratory they came up with the idea of absorption-type refrigeration and air conditioning —which put gas companies into the business (with Servel).

Those young inventors, fortunately, met a high-powered vacuum cleaner salesman, Axel Wenner-Gren.

The latter, Sweden's counterpart of Richard Grant, sold absorption-type refrigeration all over the world, and made more money than any Swede in history (including Match King Ivar Kruger, who lost most of his pile before he fell, or was pushed, out of an airplane).

Ever hear a more fantastic true story?

Romance Isn't Dead

An air conditioner isn't a single entity, like a shillelagh or a tincup. It's assembled from hundreds of intricate pieces—motors, controls, insulation, heat exchangers, pumps, valves, fittings, etc., etc., etc.

Dozens of romantic stories could be told about the origins of those items. Like the time Al Penn's boss cut his commissions because he was selling so many controls, so Al started making them himself . . . and the time Ed Raney decided to be his own engineer and founded Ranco . . . and George Dwelley went hunting and came back with the idea for a cube-ejecting ice tray because he noticed ice had cracked off his rubber boots . . . and so on and so on.

From such little acorns, mighty oaks have grown! And so quickly!

Moreover, we are right on the threshold of tremendous further advances in the art and science of temperature control for the betterment of mankind.

Everybody expects great things of air conditioning. Commercial refrigeration is headed for new plateaus, also. And as for home automation (appliances of the future) "we ain't seen nothing yet."

In years to come dozens of new romantic stories will come to pass. It's an exciting industry we're in—and it has affected our nation's citizens profoundly *for the good.*

We are lucky to be connected with this business—and should be grateful for the improbable accidents which founded it.

Ladue Chapel Expansion To Include Conditioning

JERSEY CITY, N. J. — Included in the $400,000 expansion program of Ladue Chapel here is installation of air conditioning in the existing structure and in two additions under construction.

Additions are to consist of a two-story educational wing and a one-story building for youth activities. Completion is expected to be in the summer of 1958.

Dealer Wages Campaign To Promote Air Conditioning of Phoenix Schools

PHOENIX, Ariz. — Newhall Brothers, Curtis refrigeration dealer here, is putting on a vigorous campaign in the interest of school air conditioning, according to Ed Newhall, partner.

The firm points out that to date only 9% of school funds are spent for buildings and that only a slight increase in the percentage allotted to housing could provide for cooling.

A major step in this direction was the recent work which Newhall Brothers has completed at the new Washington school, a two and a half million dollar structure in Phoenix.

Original bids on the school called for a 100-ton compressor but the air conditioning contract was withheld while heating was bid in.

In carrying the former contracts, Newhall Brothers installed two 7½-hp. pumps which will provide for chill water circulation in later air conditioning and sized all ductwork throughout the building for later refrigerated air conditioning.

Coming up for later air conditioning are the Sunny Slope high school, which will amount to 25 to 100 tons of air conditioning, and two junior high schools of only slightly smaller size.

In Mesa, Ariz., a suburb some 10 miles away, a 75-ton system has already been installed for the Mesa high school. Newhall Brothers also provided complete refrigerated air conditioning for the school's administrative building.

Worthington Climate Van Makes a Stop

EXTERIOR of one of two Worthington "Climate Vans" traveling the country to demonstrate Worthington's line of packaged heating, cooling equipment. Some men hurry in to see the exhibits, while several delay a bit to inspect mechanism that allows parked van to double its width—the push of a button does the expansion job.

INSIDE, scores of exhibits, representing equipment in Worthington heating and cooling line, are arranged along walls and on ceilings —displayed against bright speckled green decor. Center aisle of black and grey tile is 8 ft. wide for easy movement. In foreground is pictured Worthington "million dollar" compressor, heart of all Worthington cooling equipment.

Cooling Equipment on the Farm works better when made with dependable

H & H TUBE

Not only does tubing by H & H Tube & Manufacturing Company make cooling equipment of good quality even better, but it also makes manufacturing easier, faster, more economical and thus more profitable. That's because H & H Tube — whether you buy it already fabricated into parts or for fabricating yourself—is always delivered as the customer ordered. Strict adherence to customer specifications as to O.D., temper and grain size, assures a perfect fit always, fewer production delays, fewer rejects.

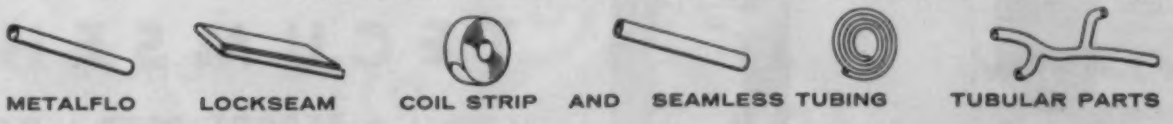
★ ★ ★

Expect the BEST brass and copper products from

H & H Tube AND MANUFACTURING COMPANY

Available in straight lengths up to 20', also in 50' coils. It is deoxidized, bright annealed, dehydrated—in sizes, wall thicknesses and tempers to meet every requirement.

271 N. Forman Avenue, Detroit 17, Michigan • Offices from Coast to Coast



METALFLO LOCKSEAM COIL STRIP AND SEAMLESS TUBING TUBULAR PARTS

'One-Call Close' Plan—*(To Sell Home Cooling)*

Properly Organized, With Adequate Training of Salesmen, Right Tools, It Ups Sales by Getting Story to Prospects at Best Possible Time

SYRACUSE, N. Y.—A "one-call close" sales presentation plan to crack the market for existing home summer air conditioning systems is being instituted by Carrier Corp. on a nationwide basis.

Principal elements of the plan are to train salesmen, and give them easy-to-use estimating tools, so that in a single sales call the salesman can give a complete air conditioning sales story, estimate the equipment that will be needed, give the prospect the price he will have to pay and the terms on which he will buy, and close the sale with a then and there signed order.

Cooling Bought On Impulse

There are many good reasons why Carrier executives believe this can be the most successful approach to the existing home market for comfort cooling—the fact that air conditioning is still bought largely on impulse, that the traditional "100 days in which cooling can be sold" still holds true, that failure to get the order while the customer is in the mood or suffering in the throes of a hot spell can mean loss of an order.

'Astounding Results'

But probably a more important consideration is that the program has been tried—and astounding results have been achieved.

Several Carrier distributors have been using the plan for some time with outstanding success. It was put to its first extensive field test by Carrier's Kansas City, Mo. distributor, who began to realize that his retail dealers were fighting a losing battle trying to make any dent in the existing home market with their current sales practices and personnel.

For one thing there was the sheer size of the market, plus the fact that the number of new homes being added to the market without air conditioning each year was greater than the number of present existing homes that the dealers were contacting in a year thus ballooning the size of the market annually. And then there was the factor of the "100 days" in which the selling was to be done.

Use Fast-Moving Specialty Methods

"As I saw it, we had no chance of keeping up with the market unless we cut loose from the cumbersome, time-consuming engineering approach," Frank J. Dean, Jr., president of the distributorship stated, "and equip ourselves to go after the market with fast-moving specialty selling methods. We could double or triple the number of our sales engineers—if we could find them—and still not make more than a dent in our residential sales potential.

"The trouble is that we have been dealing with the residential market as if it were just another part of the contracting business. We've been selling the prospect on the idea that air conditioning is good for him. Then we go out of our way to delay the signing of a contract instead of making it easy for him to decide while he is in a mood to purchase the unit.

"If this sounds fantastic, analyze the usual sale to any existing home and you'll see what I mean. The original contact is made with the customer. Then we methodically survey his home and go back to the office to select the equipment, estimate the job, and arrive at an installed price. By the time we have come up with a neatly-typed proposal, five to seven days have usually elapsed.

"What's happened to our prospect in the meantime? We've given him time to shop competition and get himself properly confused. But even if he is still sold on our product, his buying interest may have cooled. It's just impossible to keep a prospect at white heat under such circumstances. That is why we had to find a way to short-cut engineering."

The distributor's sales manager, Norman Humphreys, furthered this thinking in terms of what it means from the standpoint of sales personnel and sales activity.

"Sale of residential air conditioning must be put in the hands of specialty salesmen, not sales engineers," he said. "The specialty salesman knows how to turn on the heat and close a sale fast. That's what it takes to sell the existing home market.

"In order to make this type of man effective, however, we must make it possible for him to estimate a job and quote an installed price on the spot. When

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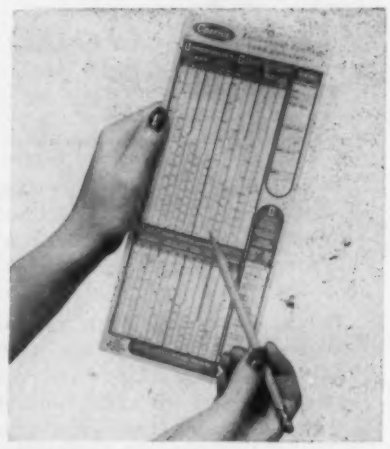
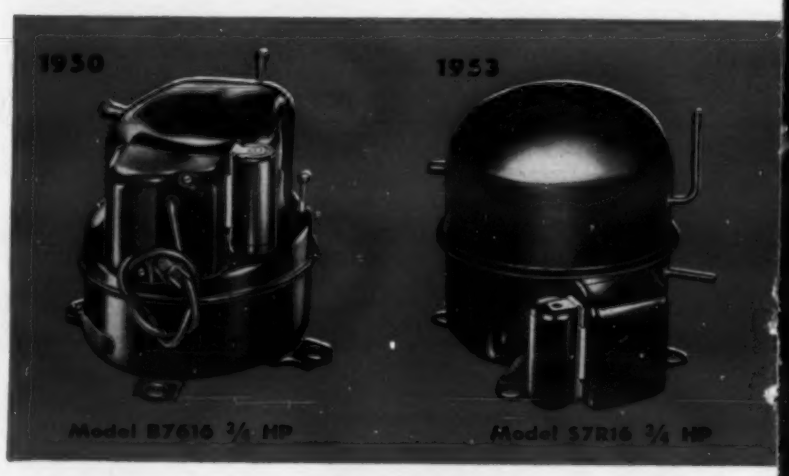


COOLING LOAD CALCULATOR—Calculation of a central system cooling load has been simplified with this cooling load slide rule produced for Carrier distributors and dealers. The calculator takes into consideration the number of windows, roof and floor area, and the linear feet of wall space in the home in which estimates are being made.

Tecumseh

engineering VISION

From The Compressor That Was PRE-DESIGNED For The Air Conditioning Boom . . . Came Compressors Extending The Market— At EVEN LOWER UNIT COST!



1953 — 20% Cost Saving Over 1950 Model B7616
1957 — 10% Cost Saving Over 1953 Model S7R16

Long aware of the vast potential of air conditioning, Tecumseh alone stood ready to make deliveries to the industry in 1947. By 1950 the popular ½ and ¾ HP twin cylinder compressors had already been field tested and were enthusiastically received for room cooler applications. Accepted as the standard of the industry, the Tecumseh ¾ HP twin cylinder shortly was contained in 72% of all air conditioners sold.

With an industry fully satisfied with the performance of the Tecumseh twin cylinder compressors, Tecumseh engineers began the development of an efficient single cylinder model. The Tecumseh ½ and ¾ HP single cylinder compressors helped expand the industry by bringing the price of the window air conditioner within the reach of more people. They completely replaced the twins within their horsepower range and incorporated design features which anticipated future power regulations.

TWIN CYLINDER DEVELOPMENT

As the single cylinder models replaced the smaller horsepower range of twins, the 1, 1½, and 2 HP twin cylinder models were developed to supply the industry need for larger capacity. The addition of PSC motors has allowed the elimination of costly and troublesome electrical components with a corresponding saving in the cost of the complete unit.

A 2 HP compressor today costs less than the ¾ HP compressor of 1950!

1957
Model B74T16
2 HP

The Leader Serving Leaders In The Air Conditioning And

TECUMSEH PRODUCTS

EXPORT DEPT. — P.O. Box 2280, 24530 Michigan Ave.,

Exhibiting in BOOTH NO. 1114.

HY-LO MODEL C
CONDENSATE PUMPS
- ECONOMICAL
- DEPENDABLE
- HEADS to 20 FT.
- DOUBLE INLET
- 115 V. OR 220 V.

WRITE TO
EDDINGTON METAL SPEC. CO.
EDDINGTON, PA. U.S.A.

For more information about products advertised on this page use Information Center, page 54.

'One-Call Close' Plan--

(Continued from preceding page)

he is in a position to price a complete job in a visit of two or three hours, and get a yes-or-no decision before he reaches for his hat, it naturally follows that he can call on more prospects in a week and our dealers will get a far bigger slice of the residential market."

What was done to put this thinking into action? First came the problem of simplifying the estimating and pricing of equipment. Through some hard and skillful study and work on the part of several distributors, equipment ratings, capacities, and pricing were coordinated for quick reference of the salesman.

Then came the problem of who was to use these aids. Finally, a series of schools were held on the "one-call" approach, and some 60 "students" were graduated.

.400 Batting Average

The effectiveness of this schooling and the one-call technique was accented by one group of five salesmen, who approached a total of 99 prospects, and sold 38 jobs for a batting average of about .400. And half of those jobs were sold on the first call, and nearly all of the remainder on the second.

The initial work done by the Kansas City distributor, and others, indicated that the plan was feasible, and had a high sales potential. As a result, one-call sales activities all over the nation were integrated in a single, over-all plan.

In setting up this plan on a national scale, Carrier has made several refinements. The load estimating and duct sizing, and the pricing schedule have been greatly simplified so that there is no problem for the salesman in developing all this necessary data on the spot.

THE FACTS, MA'AM—Trying for the "one-call close," this dealer salesman is explaining his analysis of her home's cooling requirements to the lady of the house. A careful study of each home's needs, and the cost reduced to a low monthly payment figure, has resulted in a high percentage of one-call closings for Carrier dealers.

DUCTWORK INSPECTED — Inspection of existing warm-air ductwork is another phase of the one-call close technique which has aided Carrier dealers roll up sales records in the Kansas City area. A slide-rule calculator helps the salesmen decide if the existing ductwork will handle the new cooling requirements, or what it will cost to put in new ducts.

For instance, a single 8½ by 11-in. sheet of paper has (using both sides) printed spaces for all the data needed for (1) estimation of the load; (2) installation data; (3) equipment selection for both heating and cooling; (4) installation pricing.

The load estimating part of the survey includes sections for window area, roof area, floor area, and wall length—with each section having sub-divisions for the particular style or design. Then there is a section on outside design temperatures, and subsequently the required capacities for both heating and cooling of the residence.

A "slide-rule calculator" which is operated by pushing perforations with the tip of a pencil or a pin, integrates all of the load data to come up with the required capacity figure. Carrier also provides a room by room slide rule which permits individual room load estimating.

Installation Data Form

The "installation data" part of the survey form incorporates space for water and electrical supply data, ductwork (in detail), information on the existing furnace (with details on blower and available space for cooling coil), and the condensing unit. A "duct-work and air delivery" calculator which works on the slide-rule principle simplifies this task for the salesman.

One whole side of the 8½ by 11-in. survey sheet form is devoted to a listing of all the Carrier equipment—by model number—for residential heating and cooling applications, and by clever arrangement, it is simple to select the equipment in the range of capacity required. Since the range offered by the various models is sufficiently broad, it is rare that the estimated load requirement would ever necessitate a critical selection between two models of different capacity.

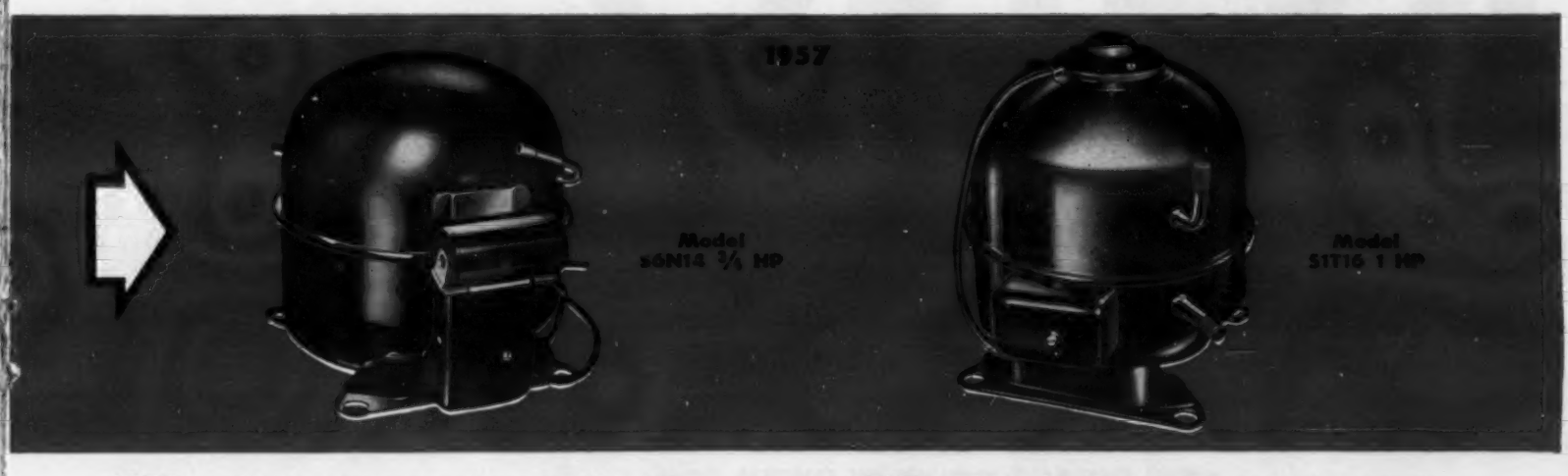
On-Spot Pricing

Then there is a table for installation pricing, which is very inclusive, taking in such things as equipment foundations and license fees and permits, as well as all of the standard items. A compact reference guide, locally, gives him the necessary figures to put into this table.

So the salesman is equipped to price the job on the spot—

(Continued on next page)

means **PROGRESS**



1957 — 29% Cost Saving Over 1950 Model B7616

1957 — 28.5% Cost Saving Over 1950 Model B7616

Still further advancements have been made. From the Model S7R16 design came the new single cylinder models above. The S6N14 is a ¾ HP, 7½ amp. hermetic compressor which permits the manufacturer to offer a room air conditioner that may be plugged into existing house circuits.

The S1T16 is a 1 HP, 12 amp. unit which may be operated off *a single outlet 115 volt line.*

This is Tecumseh PROGRESS working for you to provide better compressors for wider applications at the best possible price.

PRODUCTION GEARED TO YOUR NEEDS

Together with constant *Engineering Vision* aimed at continual product improvement, Tecumseh mass production efficiencies have kept pace. Savings and product improvements passed along to Tecumseh customers have given them advantages available from no other supplier.

Tecumseh production capabilities were dramatically proven during the growth of the room air conditioning industry. Anticipating a volume well beyond the general industry forecasts and realizing the highly seasonal nature of the demand, Tecumseh invested several million dollars to build a complete standby production facility for room air conditioner compressors. Completed in 1952, this line allowed Tecumseh to supply customers with their unprecedented and unexpected demand for almost one *million* compressors in 1953! *This actual production exceeded the most optimistic estimates by almost a half million units!* Tecumseh VISION was directly responsible for the early realization of the industry's first million unit year.

However, mass production is not the answer in itself. Meeting delivery schedules for a wide variety of units, each engineered to individual needs, when and where the customer requires, is a recognized necessity. At Tecumseh this is possible because of strict production control and an experienced, capable labor force, long accustomed to meeting these exacting requirements. Continuing advancements in the best interests of the industry will always be the watchword at Tecumseh.

Refrigeration Industries
COMPANY
West Dearborn, Michigan / **MARION, OHIO**
TECUMSEH, MICHIGAN

International Heating & Air Conditioning Exposition, Chicago

AIRO stands for
Speedy, dependable, world-wide service.
Air Conditioning and Refrigeration parts, equipment, supplies.
Write for Wholesale Catalog No. 56
AIRO SUPPLY CO.
2732 N. Ashland Ave., Chicago 14, Ill.

For more information about products advertised on this page use Information Center, page 54.

'One-Call Close' Plan--

(Continued from preceding page)

and often does. But isn't it possible that he might be off as much as 5% too low on the job in terms of the kind of a profit the dealer hopes to make?

"Sure that's possible," say Carrier officials, "but there are two compensating factors. First, with the sale made on a single call, a lot of sales expense is saved. Second, it's just as possible that the salesman is likely to be a little high on the next job, so that it all averages out in the end."

Carrier also put its sales training department to work on refining, streamlining, and "packaging" the "one-call close" sales approach. A step-by-step plan has been put in writing, and a training film shows exactly how the plan works in practice which is available to all Carrier dealer salesmen from any Carrier distributor.

For Use With 'Qualified Prospects'

The "one-call close" sales presentation is designed primarily for use with "qualified" prospects—that is, homeowners who have indicated some interest in purchasing air conditioning, perhaps through a response to some form of consumer advertising. However, it can also be effective on a "cold canvass" approach.

In the salesman's presentation to the prospect there is no neglect of selling completely the fundamental need for air conditioning—and in this phase the results of the Austin Village, Texas, study are relied on heavily. The salesman should work on this theme, it is recommended, until the prospect is in full agreement that he wants air conditioning.

After finding out the make and age of the heating system (and determining whether or not the prospect is interested in heating as well as cooling) the next big step—and an all-important one—is that of qualifying the prospect on price.

"It is important to find out as quickly as possible if the prospect has any idea what air conditioning will cost," says the Carrier training guide, "and to find the range of prices that 'bracket' him.

"It is vital to make the most of your hours during the brief selling season—not to waste time with prospects who cannot or will not consider a fair price for air conditioning."

To make it easy and most safely qualify the prospects, Carrier has developed a technique of price qualification based on a study of buying habits of various income groups which uses proven aids to determine the degree of customer interest early in the interview.

Those who have used these techniques have reported outstanding sales success and avoided fruitless, time-consuming interviews.

CHECKING POWER REQUIREMENTS — As part of the one-call close technique, Carrier dealers and their salesmen inspect existing wiring to see if it can handle the power requirements of an air conditioner. Approximate costs are given if additional power input is needed, and the figure is included in the final estimate made to the homeowner.

Repeat Benefits

Should interested prospects show resistance to the price range the Carrier technique calls for a repetition of the benefits, emphasizing the advantages and savings in living cost, until a receptive attitude is reestablished in the prospect, in the price range quoted, and the proposal is continued.

If interest cannot be reawakened, the interview is terminated and the prospect's name is shifted to the direct mail campaign follow-up list.

Show the prospect show considerable resistance to the indicated price range, the salesman should then (1) go over the benefits of owning air conditioning, emphasizing the "savings in living costs" angle, and if this does not break down the resistance, (2) the salesman may have to switch his pitch to a room air conditioner.

Survey Made When Qualified on Price

Once the prospect has qualified on price, the survey is made, preferably with the man of the house assisting. In this way the salesman can thoroughly demonstrate the care he takes in selecting and applying the proper equipment for the home.

Carrier's training guide impresses upon the salesman the importance of doing the survey job with care and thoroughness, and of using neat and "professional looking" tools such as 50-ft. steel tape, folding rule, flashlight, dental type mirror (for reading hard-to-get-at furnace model numbers), cross hatch layout paper, and air measuring devices.

Once the survey has been completed, the equipment selected with the point emphasized to the prospect that equipment has been selected which should best fit his needs, the next step is to price it, and this should be done, says the training guide "with the prospect looking over your shoulder, getting in on the act, fully understanding the elements of the pricing as you go along."

Recommends 4 Pricing Methods

However, the salesman is advised to select one of four methods of pricing, selecting the one which in his mind is most likely to appeal to the prospect.

Carrier recommends four pric-

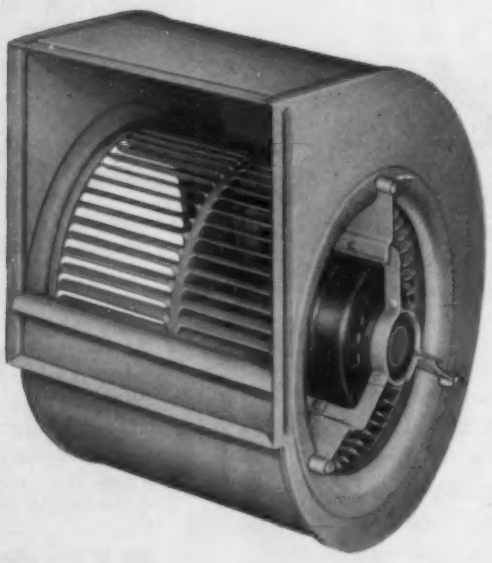
(Concluded on next page)

STRONG

SILENT TYPE

NEW DIRECT DRIVE BLOWER FOR HEATING-COOLING COMBINATIONS

For some time there's been a *quiet* revolution afoot at Utility. And manufacturers of heating, cooling, refrigerating and ventilating equipment are solidly behind it. Newest creation of this passion for silence is a burly brute of a direct drive blower. We call it "Big Boy," newest of a new breed—the strong, *silent* type.



With airflow capacity great enough to handle up to 125,000 BTU—3-ton heating-cooling combinations, "Big Boy" will deliver approximately 1,400 to 1,500 CFM at a static pressure of 0.80" WG to make it the most powerful direct drive blower now available. Yet, low outlet velocity makes it ideal for residential units. Extremely compact, and easily speed-controlled, it is equipped with Neoprene hubs and super-quiet permanent split capacitor motor to give the sales appeal of silence to your equipment.

For quality you can count on, check Utility's silent "Big Boy" Direct Drive Blower. In blowers and parts, you'll always find that...

YOU CAN'T MATCH UTILITY FOR PRODUCT AND PRICE!

A DIVISION OF UTILITY APPLIANCE CORP.

UTILITY FAN CORP.

911 East 59th Street, Los Angeles 1, California

Manufacturers of heavy and standard duty blowers for heating, air conditioning and ventilating installations. Producers of blowers and blower parts for original equipment manufacturers. Write for catalogue data.

For more information about products advertised on this page use Information Center, page 54.

'One-Call Close'-

(Concluded from preceding page)

ing methods, any one of which will create its greatest prospect interest and acceptance. At least one of these methods is tailored to the individual dealers' local situation and is designed to help "sell the job" through "open" pricing with the prospect.

The time is at hand—in the "one-call close" presentation—to get the customer's signature on the order. There are many ways of leading into the matter of "asking for the order" including such time-tested strategy as translating the price into terms, setting a date for installation work to begin, etc.

Complete instructions on the air conditioning industry's most successful closing techniques are included in the dealer-salesman's one-call close training package. These methods have been highly successful. The effectiveness of the technique was strongly accented by the fact that conversion-type Carrier Weathermakers, on which one-call salesmen have been concentrating, have been on allocation since the plan was introduced to dealers last spring.

In the early days of one-call selling the Carrier distributor and dealer who were original participants reported that the method was not always a "one-call" close, but that in some cases the approach set up was a simple, easy, almost definite second-call close.

As a result of these findings, Carrier's sales training department did not stop with a one-call formula, but extended this training program to include its most effective techniques to use in making a "one-call" approach result in an easy "two-call" sales conclusion.

Instruction is also given in the training guide for the "two-call close" in which the steps are very similar up through qualifying on price, after which the salesman makes a date to return with the exact price and a complete written proposal.

Salesmen are urged to return to every one of their customers after the installation has been made, not only to be sure that they are satisfied with the operation of the unit, but also to get photographs and testimonials that can be used in future sales efforts.

"Carrier distributors who have presented this training program to dealers have reported outstanding success," Ted Skoglund, director of Carrier's sales training department states.

Heating, Air Conditioning Institute Appoints Alvin Public Relations Director

LOS ANGELES — Appointment of Joseph J. Alvin as public relations director of the Institute of Heating & Air Conditioning Industries was announced recently by R. E. (Rudie) Harkens, managing director.

Alvin will be responsible for both internal and external public relations of the institute as a member of the new public relations-advertising team created by the Stamp Plan, Harkens said. Ty Macdonald, vice president of Hixson & Jorgenson, Inc., heads the advertising program.

New Supply Firm Formed In Winston-Salem, N. C.

WINSTON-SALEM, N. C. — Air Conditioning Supply Co., Inc., has been granted charter of incorporation listing authorized capital stock of $100,000. Incorporators: Mrs. Sam W. Turner, Mrs. Phyllis Stack, and Sam W. Turner.

Turner, who is also associated with Wall-Turner Heating & Air Conditioning Co., said that Air Conditioning Supply Co. has been formed to serve as a wholesale outlet for this area.

Heating, Cooling Group Kicks Off Indoor Comfort Speaking Drive; Financed by 'Stamp Plan' To Acquaint Homemakers with Standards

LOS ANGELES—William L. Hoyt, Jr., chairman of the newly-elected Speaker's Committee of tne Institute of Heating & Air Conditioning Industries, kicked off a public service speaking campaign in the interest of better indoor comfort standards before the Kiwanis Club at Pasadena, Calif. recently.

Robert N. Hall, president of the institute, was scheduled to address the Kiwanis Club of North Hollywood, Calif. sometime during the following week.

Scores of similar talks before both men's and women's clubs of southern California are planned by Hoyt, Hall, Managing Director R. E. Harkens, and other qualified speakers as part of the institute's program of public relations and education to acquaint home makers with heating and air conditioning standards.

The program is intended to upgrade the industry and create a public demand for better installations in both technique and price. It's financed through the so-called "Stamp Plan" of assessment through invoice at the factory level.

Kwik-Chek Market Cooled

MOBILE, Ala. — Air Conditioning Engineers, Inc. had the contract for installation of a Carrier air conditioning system in the new $200,000 Kwik-Chek Supermarket at 1000 Fulton Rd., operated by Winn-Dixie Stores, Inc.

Radically new Vornado® selected dealer program makes central air conditioning a good business proposition...

VORNADO SELECTED DEALER PROGRAM ASSURES YOU:

★ Adequate Sales Area ★ Traffic Building Promotions ★ Proven Prospect Program ★ Continous Sales Application and Installation Training ★ Powerful Merchandising and Advertising Assistance ★ Full Profits

Vornado can be attached to the heating system or installed as a complete and separate system. Vornado goes anyplace, wherever it is most practical: attic, crawl space, basement, furred down hallway.

COMPLETELY PACKAGED...Vornado puts air conditioning in self-contained, air-cooled package...eliminates extra plumbing...water connections...outside accessories. Everything in just one compact, sturdy package!

OUTSTANDING PERFORMANCE...Two hermetically-sealed, heavy-duty compressor units deliver unequalled capacity. One operates continuously – constantly removes excess humidity. Second compressor cycles on and off as needed for economy's sake.

FULLY GUARANTEED...Factory warranty assures satisfactory service. Over 7 million satisfied Vornado users.

Only System of Its Kind Proved in Thousands of Homes

These dealers billed over $100,000 each with Vornado Central Air Conditioning in 1956

"Vornado certainly proved to us they have the plans and the product to sell and merchandise in volume. Vornado's complete training program enabled us to start out in the right way. This valuable help, along with the many ways the product can be adapted to all types of residential and semi-commercial installations...has made this business very profitable for us." S. J. Speer and Son, Caldwell, New Jersey.

"Having introduced Vornado in Washington last year, and with over 300 jobs installed, we can say that since our entry into the air conditioning field in 1932 we have never experienced any item that has given our customers so much satisfaction at so little cost, and has been such a pleasure to sell." A. H. Johnson, President, A. S. Johnson Co., Inc., Washington, D. C.

Vornado dealers all over the country are enjoying comparable success.

SEND THIS COUPON TODAY

The O. A. Sutton Corporation, Inc.
1812 West Second Street, Wichita, Kansas.

I want complete information on your new versatile low-cost Vornado Central Air Conditioners. It is understood there is no obligation.

Name _____
Firm _____
Position _____
Address _____
City _____ State _____

ARN

Products of
THE O. A. SUTTON CORPORATION, INC., Wichita, Kansas
World's leading full line manufacturer of comfort cooling appliances

For more information about products advertised on this page use Information Center, page 54.

Service Charges, Parts Markups, Maintenance Contract Costs

The editors of Air Conditioning & Refrigeration News plan to follow this tabulation of the range of charges for air conditioning parts and service by contractors in the New Jersey area, with a similar tabulation of such charges on commercial refrigeration service work.

It is also planned to combine these tabulations with some information which has already been published, and some other data to be published in the near future on the subject of service maintenance contractors, into a reprint to be made available.

N.J. Survey Shows Range of Principal Air Conditioning Service Charges

DETROIT — The range of labor charges, prices of service maintenance contracts, and markups on system components, for a group of air conditioning and refrigeration contractors and service contractors in the state of New Jersey, has been surveyed by AIR CONDITIONING & REFRIGERATION NEWS as reported in this issue.

Survey of the pricing practices was made with the cooperation of the Refrigeration & Air Conditioning Contractors Association of New Jersey, Inc., which organization offered assistance in providing names to be surveyed, and in backing the plan. (This does not mean that the survey represents results from the complete membership of the association.)

On such items as Minimum Labor Charge, Hourly Charge per Man, and markups on such components as belts, compressors, condensing units, controls, valves, and refrigerants, the figures given reflect the "high" and "low" charge indicated in the individual returns from the survey. Because an "average" price would come out to some odd dollars and cents, the "most frequent" price or markup is given for the items.

On the survey of prices charged on yearly service maintenance contracts (in two categories, with and without parts) an average price charged is given in the tabulation.

Those contractors responding to the survey were asked to identify the community in which they operated in terms of the population size. The following is some of the variations in average labor charges, between contractors operating in communities of over 100,000 population, and communities of less than 100,000 population.

Labor Charge	Over 100,000	Under 100,000
Minimum Charge	$6.75	$5.25
Hourly Charge	6.25	5.25

Contractors who responded from the communities under 100,000 population employed from two to 10 service and maintenance men, the average being between five and six men. In the over 100,000 population areas, those contractors replying employed from two to 20 service and maintenance men, the average being between seven and eight.

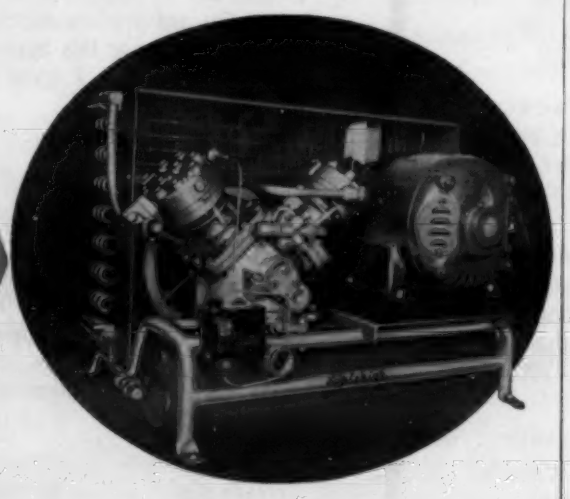
Of the contractors replying, those who had a higher than average labor charge, showed a tendency to charge a lower markup on parts, while those having a lower labor charge, seemed to tend to a higher markup on parts.

Range of Charges for Air Conditioning Parts and Service In New Jersey

Item	High	Low	Most Frequent
1—Minimum Labor Charge.. (Including 1st half hour per man)	$10.00	$4.50	$5.00
2.—Hourly Charge per Hour per Man	$10.00	$4.50	$5.50
3—Belts (New) (Markup) ..	100%	20%	50%
4—Compressors, New (Markup)	100%	17%	50%
5—Condensing Units, New (Markup)	100%	17%	50%
6—Controls (Markup)	100%	35%	50%
Refrigerants			
7—Refrigerant 12 up to 10 lbs.	$ 1.75	$1.10	$1.50
8—Refrigerant 12 over 10 lbs.	$ 1.60	$ .85	$1.10
9—Refrigerant 22 up to 10 lbs.	$ 4.00	$1.85	$2.80
10—Refrigerant 22 over 10 lbs.	$ 3.50	$1.85	$2.00
Valves			
11—Expansion Valves	100%	40%	50%
12—Water Valves (Markup)..	100%	40%	50%
Service Maintenance Contracts (Yearly)			
With Parts			**Average**
13— 2 hp. System			$100.00
14— 3 hp. System			$100.00
15— 5 hp. System			$135.00
16— 7½ hp. System			$150.00
17—10 hp. System			$185.00
18—15 hp. System			$215.00
19—20 hp. System			$215.00
Without Parts			
20— 2 hp. System			$ 45.00
21— 3 hp. System			$ 52.50
22— 5 hp. System			$ 65.00
23— 7½ hp. System			$ 77.50
24—10 hp. System			$ 95.00
25—15 hp. System			$122.50
26—20 hp. System			$150.00

IDEAL
Speed-Freeze
PRODUCTS
BEVERAGE COOLERS AND INSTANTANEOUS DRAFT BEER COOLERS.
(With Refrigerated Faucets)
WRITE
IDEAL COOLER CORPORATION
2953 EASTON AVE. • ST. LOUIS 6, MO.

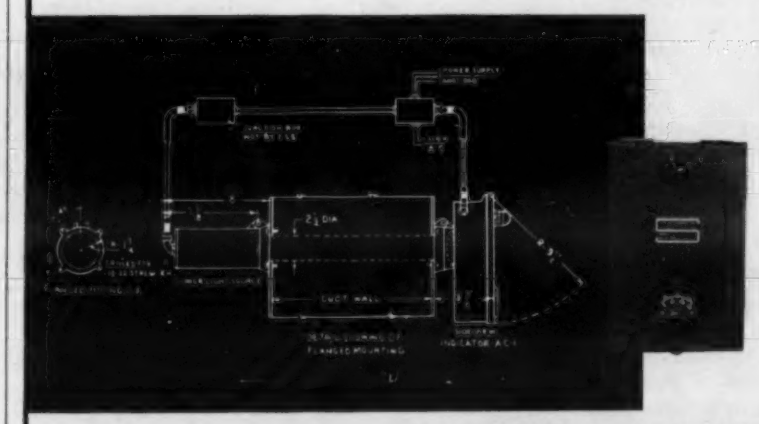
LEHIGH BLU-COLD CONDENSING UNITS
lead in
ADAPT-*ability*
DEPEND-*ability*
FLEX-*ability*
SERVICE-*ability*
—and their unique tubular air-frame base adds complete ACCESS-ability!



where "**ability**" counts,
specify Lehigh
Lehigh BLU-COLD MANUFACTURING CO.
DIVISION OF LEHIGH, INC. • Plant: Lancaster, Pa.
Export Dept.: 13 East 40th Street, New York, New York
write now . . . for important informative catalog

LOOKING FOR A JOB?
CHECK THE CLASSIFIED ADS

Guard Against PANIC FIRE SMOKE DAMAGE



Air Conditioning SMOKE ALARMS
ESS "electric-eye" units give split-second detection of smoke in ducts. Relay stops fan motor and gives alarm. The ESS unit is one of the greatest safety factors available. Many cities require it... most engineers specify it for **department stores, hospitals, schools, hotels,** etc. Write for details.
ESS
ELECTRONIC INSTRUMENTS and CONTROLS for INDUSTRY
TO KEEP OPERATIONS WITHIN LIMITATIONS
INSTRUMENT COMPANY
96 SOUTH WASHINGTON AVENUE, BERGENFIELD 3, NEW JERSEY

For more information about products advertised on this page use Information Center, page 54.

Phila. Distributor Room Unit Sales Up 31% In '56

PHILADELPHIA—The Electrical Association of Philadelphia reported here that sales of 20 local distributors of room air conditioners climbed to 52,024 last year as compared with 39,641 in 1955, an increase of 31.2%.

Largest monthly sales were 17,313 in June as against 13,640 in July, 1955.

Refrigerator and home freezer sales dropped to 66,487 and 6,424, respectively, in 1956 as compared with 76,585 and 10,228 the previous year.

The report covers sales to dealers in Bucks, Chester, Delaware, Montgomery, and Philadelphia counties.

Monthly unit sales of these appliances were as follows:

(See above right)

Date	Air Conditioners 1956	Air Conditioners 1955	Home Freezers 1956	Home Freezers 1955	Refrigerators 1956	Refrigerators 1955	519	762	5,582	9,593
January	2,727	1,362	537	964	5,010	6,657	991	857	7,025	7,501
February	5,658	1,821	658	1,061	6,076	4,603	524	813	4,901	6,044
March	5,701	3,801	486	1,348	5,982	5,962	535	596	4,551	4,939
April	4,634	2,475	401	894	4,876	5,353	491	807	4,740	6,415
May	10,219	5,222	421	834	6,047	6,354	365	491	3,682	5,874
June	17,313	4,536	496	801	8,015	7,290	6,424	10,228	66,487	76,585
July	2,895	13,640								
August	967	3,965								
September	431	241								
October	496	209								
November	247	1,603								
December	736	766								
Total	**52,024**	**39,641**								

Mitchell Flip-Chart Shows Room Unit Component Functions

CHICAGO — A pocket-size, flip-chart room air conditioner booklet is being made available to its dealers by Mitchell Mfg. Co.

Scores of facts about room air conditioners are included in the book which is of step-down page index form for fast, easy reference, according to the company.

"It is designed to give the appliance salesman an effective method of showing the room air conditioner customer exactly what he is getting for his money," said Howard Haas, vice president in charge of advertising and sales promotion.

Sketches and written descriptions outline the functions of each component part of the air conditioner, show its location, and demonstrate its importance to the unit as a whole.

"Most people know little about the workings of a room air conditioner," Haas said. "And few retail salesmen understand the unit well enough to convince the customer he really is getting his money's worth. We feel the booklet bridges this vital informational gap."

Four sections comprise the inside of the booklet—one each for Mitchell's "Roto Cone" series of room units, "Ultra-Thin" series, "Power Pac '24'" series, and "Imperial" series.

The back of the 42-page booklet has sketches and pertinent information on the other three series in the Mitchell line: "Casement," "Advance," and "Pancake."

"In addition to use by the salesman inside the store," Haas said, "the booklet will be valuable for house calls where the unit itself is not available for demonstrations."

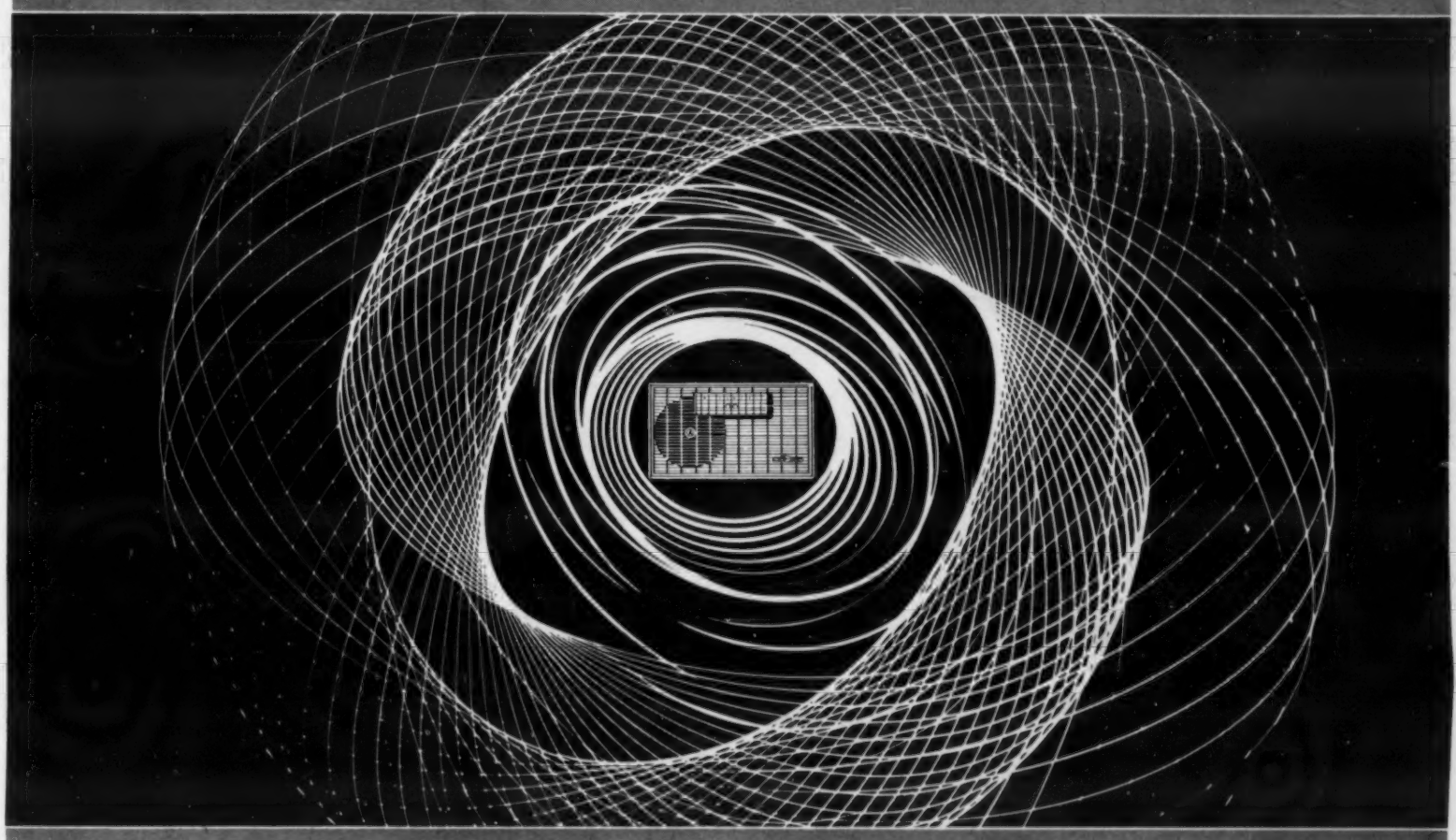
A. P. McNamee Dies

WHITE PLAINS, N. Y.—Albert P. McNamee, 62, *McCall's* manager of sales development, died recently at White Plains hospital.

A member of *McCall's* advertising sales staff since 1927, he served for many years as the magazine's manager of home appliance marketing and last year was named director of *McCall's* Use-Tested Tag plan.

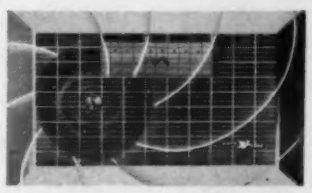
WITH

ROTO CONE COOLING...

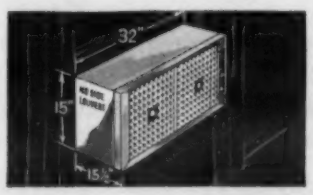


MITCHELL

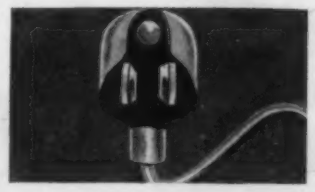
again obsoletes all other room air conditioners



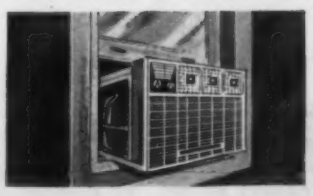
MITCHELL obsoletes all existing concepts of air conditioning...with **Roto Cone.** Now you can sell air conditioning's most brilliant advance in a decade...the air conditioner that cools 21% faster.



MITCHELL'S Pancake is lower, thinner, more versatile. Measures a mere 15" high, 15½" deep and 32" wide, with **no side louvers.** Advance design slide-out chassis provides unlimited application.



MITCHELL'S 12 new **low amp** air conditioners feature big cooling capacity and up to 40% savings on electricity. Available in "Sill", "Thin", "Thin and Low", and "Casement" styles.



MITCHELL features deluxe **Ultra-Thin** versatility. Takes 54% less space...fits flush inside or outside with the exclusive Mitchell interchangeable slide-out chassis in identical ¾ HP, 1 HP and 1½ HP cabinets.

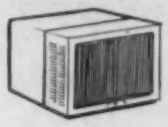
MAKE **BIG** MONEY IN 1957—CALL YOUR MITCHELL DISTRIBUTOR

MITCHELL...*The World's Finest...* Most Complete Line of Room Air Conditioners. Call your Mitchell Distributor now! Make big money in 1957 with Mitchell—leading the imaginative independents of the Appliance Industry.

MITCHELL RESIDENTIAL AND COMMERCIAL PACKAGED UNITS

65 new products

65 new profit opportunities...



2, 4 HP "Compax" Air Cooled Self-Contained Packages

2, 3, 5 HP Remote Air Cooled Split Systems

2, 3, 5 HP Store Coolers and Residential Add-On Units Air or Water Cooled

Write today for your invitation to profits:
Robert H. Lodge, Sales Manager
Packaged Air Conditioner Division, Mitchell Manufacturing Co
Chicago 45, Illinois

MITCHELL MANUFACTURING CO. *A division of the* **CORY** *Corporation* • *3200 W. Peterson Avenue, Chicago, Illinois*

IN CANADA: 19 Waterman Avenue, Toronto IN MEXICO: Mitchell-American, 78 Orinoco, Gral. Anaya Mex. D.F.

Copyright 1957, Mitchell Mfg. Co., Chicago, Ill.

For more information about products advertised on this page use Information Center, page 54.

Shift from 1937 Attitude

Medical, Hospital Authorities Recognize Therapeutic Value of Air Conditioning

WASHINGTON, D. C. — Recently published papers by medical authorities whose studies have led them to recommend air conditioning for hospitals and other spaces occupied by sufferers from various illnesses, brought a comment from Geo. S. Jones, Jr., managing director of the Air-Conditioning & Refrigeration Institute, on the apparently changed attitude on the part of medical science and hospital management toward the benefits of controlled temperature and humidity.

"It is gratifying to read of the scientific findings of medical men on the subject," Jones said, "particularly in view of the fact that 20 short years ago a committee of the American Hospital Association 'advised caution' on hospital air conditioning and pointed out that 'Air Conditioning is glamourous and has great public appeal. Because of this hospitals may be victimized for large sums of money unless extreme caution is observed.'

"However," the ARI spokesman said, "the report of that committee tempered its findings somewhat when it added: 'There is but little doubt that air conditioning will play an increasing role in the care of patients in the future, but much study and experimentation must be employed before its definite status is determined. . . .'"

In contrast with this recommendation of 1937 by the association's Air-conditioning Committee, Jones pointed to the study published in a recent issue of *The Journal of Chronic Diseases* by Dr. G. E. Burch, of Tulane University School of Medicine and Charity hospital of Louisiana, which said:

Comfortable, Cool Atmosphere Beneficial

"It would appear . . . that a cool environment should be made available not only to patients in a debilitated state, such as from cerebrovascular accidents, chronic infection, malnutrition, senility, and the like, but also to those patients whose illness would require relaxation and avoidance of stress on the body physiologic mechanisms. Patients, as well as normal men, seem to rest better mentally and physically in a comfortable cool atmosphere. . . .

Hot, Humid Environment Increases Cardiac Work

"A hot and humid environment can increase cardiac work as much as strenuous physical exercise. The environment should, therefore, be made comfortable not only for the patient with heart disease but also for aged people and for patients with debilitating states or any illness in which thermal regulation should be facilitated.

"There is a definite need to consider the hot and humid environment produced by climate, industrial working conditions, or overcrowding of the sickroom in the treatment of all patients in whom it is desired to reduce cardiac work. Greater use of air conditioning in hospitals, cardiac wards, offices, and homes will assist toward this end."

The American Hospital Association does not at present have a policy on air conditioning of hospitals, and its air conditioning committee which in 1937 advised "caution" on the subject has been disbanded, Jones pointed out.

However, a spokesman for the association has said that the subject of air conditioning of hospitals is a "very important one at this time," he added.

Public Health Service Cites Advantages

In his statement, the ARI director quoted also from a study published only in the past month on "Air Conditioning the Hospital," prepared by Richard P. Gaulin of the Div. of Hospital and Medical Facilities of the Public Health Service, U. S. Dept. of Health, Education, and Welfare. This report says in part:

" . . . Temperature and humidity control would seem to have definite therapeutic value in the treatment of such clinical conditions as head injuries or operations which affect the heat regulatory center of the brain; cardiac conditions which may be adversely affected by the strain of involuntarily increased blood circulation induced in an attempt to dissipate excess heat; hemorrhagic conditions which reduce the quantity of blood in circulation; thyrotoxicosis which increases basal metabolism; diseases of the liver and kidneys; and the many diseases which are associated with fever.

"In addition to the above, controlled temperatures and humidities and air cleanliness are requisites for the treatment of many allergies."

Sees Future Criticism Of Uncooled Hospitals

As for public reaction to air conditioning generally, the paper by Gaulin also makes a case for hospital air conditioning from this standpoint as well, Jones said, quoting:

"It is reasonable to expect that the average American, in good health, will select the theater, restaurant, or store which has cooling in preference to one not cooled during hot weather.

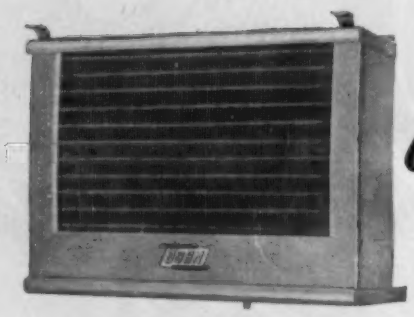
"Commercial enterprises have long recognized its value as an attraction to prospective customers, and while hospitals cannot be classed as commercial or competitive, it is also reasonable to expect that the average American in poor health, if given a choice, will choose an air conditioned hospital.

"Hospital management would be soundly criticized if during the winter season inside temperatures were purposely allowed to drop, for any extended period, 20 to 25° below the accepted comfort level.

"Therefore, as public familiarity with air conditioning increases it is logical to assume that similar criticism will be leveled at management for the reverse of that situation," the report continued.

BOHN Presents

the NEW ANGLE in Low Temperature Units with Vapor Hermetic Defrost



Model LC Unit Cooler for large walk-ins and low temperature storage. Rating from 600 through 1800 BTU per hr. at 1°T.D.

Model LR Reach-in Cooler for small applications. Ratings from 100 through 190 BTU per hr. at 1°T.D.

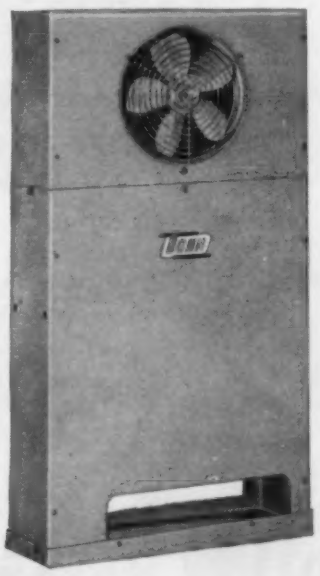
Extensive BOHN engineering research has led the way to a new idea . . . a defrost system that's unique in simplicity. A hermetically sealed vapor electric heating system is built within the coil. Heated vapor circulates by gravity, eliminating expensive flow control devices.

This system removes uncertainties and variables. It is not necessary to penetrate the frost barrier. Extra piping and complicated installation problems are avoided.

Features include an adjustable defrost time clock, heating pad in drain pan and temperature terminated switch. Easily-accessible, cartridge type heater elements in hermetic system eliminate leak tests.

Write today for full details. Reserve your free copy of BOHN CATALOG BU-1.

Model LM Mullion Lo-Temp for upright freezers. Ratings of 140 and 190 BTU per hr. at 1°T.D.



- Reasonable Cost
- Simple Design
- Fool-proof

BETZ DIVISION BOHN DANVILLE, ILLINOIS

Manufacturers of Commercial Refrigeration. Industrial Air Conditioning and Special Heat Transfer Surface

BOHN ALUMINUM & BRASS CORPORATION • BETZ DIVISION • DANVILLE, ILLINOIS

See Our Exhibit in Chicago at this Year's International Heating & Air Conditioning Exposition, Feb. 25-March 1.

For more information about products advertised on this page use Information Center, page 54.

WHAT . . WHEN . . WHERE — *A Guide to Coming Events of Interest*

American Society of Heating & Air Conditioning Engineers, Inc. (ASH&AE) Annual Meeting
Feb. 25-March 1, Chicago

International Heating & Air Conditioning Exposition
Feb. 25-March 1, International Amphitheater, Chicago

National Electrical Mfrs. Association (NEMA) Meeting
March 11-14, Edgewater Beach hotel, Chicago.

Refrigeration Service Engineers Society (RSES) Educational Forum
April 5-7, Sheraton-Palace hotel, San Francisco.

Gas Appliance Mfrs. Association (GAMA) Annual Meeting
April 8-10, The Greenbrier, White Sulphur Springs, W. Va.

National Warm Air Heating & Air Conditioning Association (NWAHACA) Committee Meetings, Technical Conference
April 29-May 2, Hotel Cleveland, Cleveland.

Air-Conditioning & Refrigeration Institute (ARI) Board Meeting and Annual Meeting
May 5-8, The Homestead, Hot Springs, Va.

National Restaurant Association (NRA) Convention and Exposition
May 6-10, Navy Pier, Chicago.

Mechanical Contractors Association of America (MCAA) Annual Meeting
May 7-10, Hotel Fontainebleau, Miami Beach, Fla.

American Society of Refrigerating Engineers (ASRE) Annual Meeting
June 2-5, Hotel Fontainebleau, Miami Beach, Fla.

National Warm Air Heating & Air Conditioning Association (NWAHACA) Summer Convention
June 5-7, Fairmont hotel, San Francisco.

Western Air Conditioning, Heating, Ventilating, and Refrigeration Exhibit and Conference
May 4-8, Shrine Exposition Hall, Los Angeles

American Society of Heating & Air-Conditioning Engineers (ASH&AE) Regional Meetings:

May 2-4, Region 5, New Orleans

May 6-7, Region 4, Los Angeles

May 10, Region 6, Tulsa

May 13, Region 3, Kansas City

NEMA Estimates Over 3 Million Refrigerators Sold In 11 Mos. of '56

NEW YORK CITY—Some 3,442,600 electric household refrigerators and 917,600 farm and home freezers were sold by all manufacturers during the first 11 months of 1956, the National Electrical Manufacturers Association estimated recently.

The estimate is based upon expansion of data reported by manufacturers to the NEMA statistical department to cover total industry sales. It includes export sales. Thirteen refrigerator manufacturers and 18 freezer manufacturers reported.

The association estimates that 211,600 refrigerators and 54,400 freezers were sold by all manufacturers during November as compared to an estimated 212,200 refrigerators and 67,200 freezers during October.

Evaporative Cooler Mfr. To Make Conditioners

PHOENIX, Ariz. — Wright Mfg. Co. here will soon begin full production of refrigerated air conditioning units.

Founded here in 1947 by Jay Wright, the firm formerly produced only evaporative cooling systems.

The company has been producing refrigerated units on a limited scale, and the new product has been undergoing extensive tests for almost two years both in laboratories and in actual home use, it was stated.

The refrigerated units will be manufactured in the company's 37,460-sq. ft. building at 2830 W. Osborn. At present the building is used for storage. Production of evaporative coolers will continue at the firm's five-acre site on Thomas Rd.

Wright said his firm's refrigerated units are designed for and have been tested under local conditions of extreme heat and varying humidity.

Production will include four different types of self-contained package units and four different types of remote control units in vertical and horizontal styles.

The new products were designed by Joseph Maierle, chief engineer and production manager for the firm's refrigeration division, and his assistant, Don McFarland.

To test the units, the company constructed a calorimeter — a room in which climatic conditions are manufactured for testing purposes.

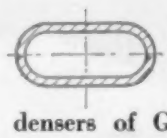
Brad Abbott, the company's sales manager, said promotion of the new product will start in February. He said the new line will result in the firm adding new personnel as needed in its production, office, and sales departments.

MARSH
Instruments

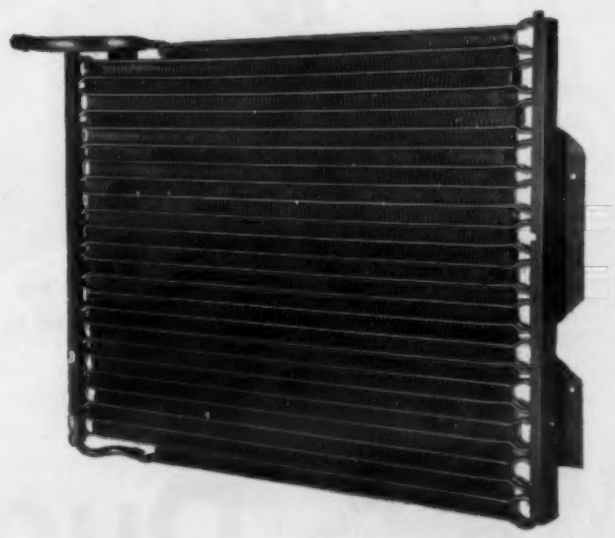
THE SERVICEMAN LINE of Testing Gauges, Testing Thermometers, Timers, etc.
PRESSURE GAUGES and Dial Thermometers for all services.
MARSH-ELECTRIMATIC, Water Regulating Valves, Solenoid Valves.
MARSH INSTRUMENT COMPANY
Sales Affiliate of Jas. P. Marsh Corporation
Dept. D., Skokie, Ill.

Hot and bothered by tubing problems?

NEW GM STEEL TUBING "FLATTENED SERPENTINE" HELPS HARRISON COOL AIR BY THE CARLOAD



New Harrison Air Conditioning Systems for the '57 GM line use new "flattened serpentine" condensers of GM Steel Tubing. This exclusive development provides more contact area for a better bond, lets less tubing handle a higher heat-transfer volume . . . cuts size and weight, boosts efficiency and strength. It's another GM Steel Tubing "first"... and typical of the resourceful engineering service that's ready to go to work on *your* product problems. Check Sweet's Product Design File 1a/Ro, write us direct or call your Rochester Products Sales Engineer.



GM STEEL TUBING BY ROCHESTER PRODUCTS

ROCHESTER PRODUCTS DIVISION OF GENERAL MOTORS ROCHESTER N.Y.

For more information about products advertised on this page use Information Center, page 54.

Distributor's Program

Expert Advises: Get Right Direct Mail List, Schedule Mailing, Keep Records, Have Follow-Up Sales Technique

By S. Byron Stone, Advertising Director,
Typhoon Air Conditioning Co., Div. of Hupp Corp.

BROOKLYN—To our distributors, we stress two indispensable axioms for a direct mail advertising program:

1. Get the right list.
2. Use it correctly.

Experience in the advertising field has shown that direct mail programs must be handled with skill. A good product, in a highly competitive field, does not necessarily sell itself. The potential buyers must be reached on a personal basis.

GETTING THE RIGHT LIST

Too often lists contain names of men who are not qualified purchasers. They often are not the ones who make purchasing decisions.

We suggest to our distributors that the first step in the use of a direct mail program is to build their mailing list with the right names.

A good list gives the name of the firm potentially interested in the air conditioning market. The right list gives the name of the man in the firm's management structure who can make the effective buying decisions.

We suggest two methods which may be used to get this fundamental list.

1. Buy a list.

In many areas there are specialists who compile highly qualified mailing lists. Yet these lists are good only if they meet the needs of our distributor whose aim it is to sell packaged air conditioners to commercial and residential buyers.

We suggest that dealers specify clearly just which persons they wish to reach when they put pieces of sales literature into the mails.

They act upon our suggestion that they be content only with reaching the buying executive. We want them to learn all they can about the prospects. The more they know, the better job they will do.

2. Prepare a list.

A list must come from somewhere. If it is not purchased, then the distributor needs to compile the list himself.

We suggest sources from which he can construct his list of qualified names. Included among the sources we recommend are:

1) the local classified telephone directory, plus a cross-check with

2) *Poor's Directory,*

3) local Chamber of Commerce Directory,

4) *Who's Who in Industry,* and

5) Dun & Bradstreet, for names of principals and their financial ratings.

A Cross Reference Directory, sold by the telephone company, is also referred to as an excellent source for residential lists. Homeowners are listed by street districts, enabling the distributor to select names according to real estate values.

USING THE LIST CORRECTLY

It is important to the distributor to know the exact results of every mailing piece he puts in the mails.

At the local level, in the area the distributor covers, direct mail advertising is a potent source of contacts, and a direct way to bring his name and our product to the attention of potential air conditioning users in his area.

Therefore, we have strongly suggested to our distributors that after securing a good list, they use it wisely by scheduling their mailing, and advise them to keep records in order to avoid sending mail to persons who have already responded.

Further, we outline a sales technique for them to follow after receiving an inquiry.

The best way to handle a mailing list is to turn it over to a letter mailing house. We supply our representatives with the Typhoon self-mailers.

The distributor has his firm's name imprinted on the mailing piece, and on the reply card. Then he packs the three-time mailing pieces into three bundles, plainly labeled "A," "B," and "C," respectively.

He instructs the mailing house to mail his material on Monday, to arrive Tuesday or Wednesday, so that his sales-getting mail is not overlooked in the weekend mail.

For the second mailing, marked "B," we have the mailing house mail them on a Monday, two weeks after mailing bundle "A."

We point out to the mailer that he must remove the names of all persons who inquired as a result of receiving the first mailing. There is no value in being unnecessarily repetitive and taking up the prospect's time.

We tell our distributors to use a follow-up technique for the second mailing, identical with that used for the first mailing. The process is repeated for the third mailing.

By this time, of course, the distributor has created the initial interest in air conditioning on the part of the prospect. We then recommend that he remain close to his contact so that a competing dealer does not close the deal as a result of our man's earlier effort.

We say, "Make a personal call—follow the call with a letter—follow the letter with another personal call."

A number of our distributors used our direct mail programs last year. Their comments bear out the importance we have attributed to direct mail.

Folk Equipment Co. of Burlington, Iowa stated: "We work 16 counties in Iowa and Illinois. Most of our business comes from towns of 10,000 or less. In our 29 years in the commercial refrigeration business, we have found the Typhoon gimmick-bearing mail program to be of inestimable help to us."

Joyce Refrigeration and Equipment Co. of Pittsburgh testified: "We subscribed wholeheartedly to your fall promotional direct mail advertising campaign. We are happy to report that we have received 16 replies. Several of our proposals will be accepted."

beamed 'round the world!

The Low Noise Levels Necessary for World-Wide Broadcasting at the Voice of America are provided by

IAC Quiet Duct

PACKAGED STANDARDIZED SILENCING

Yes, the new IAC Quiet-DUCTS eliminate noise from air conditioning and ventilating systems to meet every performance requirement! Prefabricated in as many as 148 sizes, these economical "Quiet-DUCT" units which measure in length from 2 to 10 feet provide as much noise control as a conventional lined duct measuring from 30 to 100 feet long!

See Us in Booth N-411
ASHAE SHOW

COMPLETE DATA AVAILABLE!
Write today for a complete set of data sheets and catalog describing prefabricated "Quiet-DUCT" units.

Industrial Acoustics Company, Inc. *Specialists in Noise & Pulsation Control*
341 Jackson Avenue, New York 54, N. Y. • Tel: CYpress 2-0180

For more information about products advertised on this page use Information Center, page 54.

Air Distribution System Installed With Oblique or Polygon Ductwork In Cross-Section Design of Old Bldg.

CHARLESTON, S. C. — Lopsided ducts are usually conspicuous and the result of careless workmanship, but there's an installation in this city where such ducts were deliberately planned.

They're to be found in the air conditioning system serving the historic building housing the oldest Chamber of Commerce in the United States, which was organized back in 1773 and records in its files a visit by George Washington and letters from Thomas Jefferson.

"The intricate manner in which the old building is constructed required much careful consideration and custom design for the installation of this air conditioning system," explains William T. Kennedy, vice president and general manager of Hood Electric Co., General Electric outlet here.

"Being so very old, parts of this building have sunk, which makes certain walls and ceilings not actually true in their alignment," he points out. "This required irregularly sized ducts in order to be parallel with obvious lines of the building and thus unnoticeable.

"As far as we know," Kennedy says, "it is the only air distribution duct system which is installed with the ductwork purposefully oblique in cross-sectional design, and in some cases the cross-sectional area is a polygon in order to fit into a corner."

The installation, which was sold by W. T. Herrington, Hood's sales engineer, consists of several G-E packaged air conditioners. Some are "free blow" setups while others are connected to ductwork.

A cooling tower is located directly beside the building. Piping runs between the tower and conditioners presented some problems too, Kennedy adds.

"The Society for the Preservation of Old Buildings in Charleston forbade the installers to cut through any of the hand-made bricks which are in this building," he says.

"Consequently, all plumbing and connections between the cooling tower outdoors and the packaged air conditioners indoors go in through vent openings in the basement and then up into the units themselves."

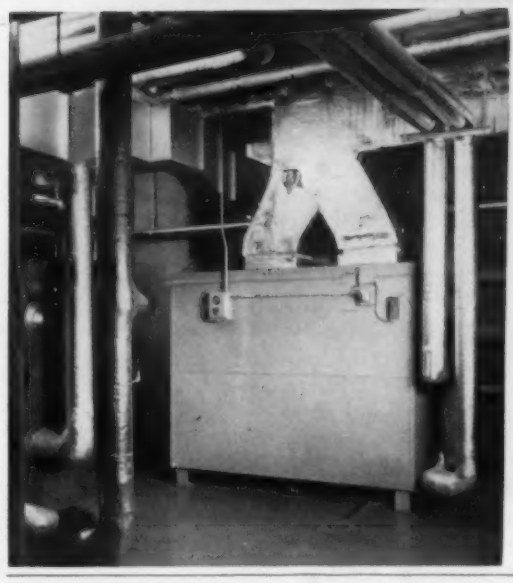
21 Story Apartment To Be Conditioned By Absorption Unit

EAST ORANGE, N. J.—A 21-story structure, tallest apartment building in this state, containing 279 apartments is now under construction here and scheduled for occupancy late this summer.

Harrison Park "luxury apartments" will be fully air conditioned by a central station unit. A 400-ton Carrier absorption refrigeration machine will be located in the basement to supply the entire building with conditioned air year around. Temperature can be regulated by tenants through individual controls spotted in every room. Original rental charges include air conditioning and utilities.

There will be refrigeration units for safe keeping of perishable items delivered while tenants are not at home. An "elaborate" exhaust system will eliminate kitchen odors from hallways, it was noted, and halls will be cooled 24-hours daily.

Westinghouse electrical appliances will be installed in each apartment. Wall ovens with individual thermostatic and time controls, automatic dishwashers, "drop-in" stainless steel surface units, and 11½-cu. ft. refrigerators are included.



Bank Cooling

FOUR Drayer-Hanson floor-mounted air handling units (HHV series), utilizing chilled water for cooling from remotely-located auxiliary equipment in basement, provide full air conditioning for the new Austin National Bank Bldg. in Austin, Texas. A predominant feature of the modern-lined, block square structure is complete facilities for drive-in customer service. The installation was made by Capitol Air Conditioning Co. Equipment sale was negotiated by Luedecke Engineering Co.

High-Velocity System To Air Condition Proposed 3-Square Block Center

NEW YORK CITY—A giant air conditioned multi-unit skyscraper center, costing in excess of $100 million and dwarfing in size and scope all office building projects created here since the Rockefeller Center group in the '30's, is planned for a three-square-block midtown area by the Alfred I. Du Pont estate of Florida.

As conceived by architects of the estate, the Du Pont Center would consist of five buildings, providing almost 5 million sq. ft. of modern air conditioned office and retail space. It would cover the entire 5½-acre area bounded by Park and Lexington Aves. and E. 46th and 49th Sts.

Use of the recently developed high-velocity air conditioning system with small pipe ducts will make it possible to place ceilings at an average level of over 10 ft., it was stated.

In addition, ground was recently broken here for a 24-story air conditioned office building at 360 Lexington Ave.

The first skyscraper to be erected in Buffalo in a generation is to be started late this year. It will be an 18-story air conditioned structure of curtain wall design containing about 140,000 sq. ft. of office and retail space.

now . . . a new and better Kool-Pak* capacitor assembly

unique plug-in design for air conditioners

Here's a complete motor-start, motor-run capacitor assembly in the smallest possible space, with two Sprague capacitors perfectly matched to your own requirements.

It provides your customers with a more economical air conditioner that lasts longer, needs less service . . . and costs you less to manufacture.

Completely exposed, the capacitors in every Kool-Pak assembly last up to two to three times longer than they would stuffed into conventional box packages. Internal heat is dissipated quickly by conduction and convection so that both the Clorinol® and the electrolytic capacitors are always far cooler. And another long-life advantage —there is no trapped moisture to corrode metal cases and parts.

Kool-Paks cost you far less because there's no outer box to pay for, no special leads or terminals to buy for interconnecting multiple capacitors. Another plus for Kool-Paks is the easier installation and easier field servicing.

Standard Kool-Paks are available for air and water-cooled 1¾, 2, 3, and 5 ton air conditioners. Mounting dimensions are identical with those of most present box capacitor assemblies. Control relays may be mounted inside the Kool-Pak junction box.

Complete information on new Sprague Kool-Pak Plug-in Assemblies for your air conditioners is available on letterhead request to the Technical Literature Section, Sprague Electric Company, 63 Marshall St., North Adams, Massachusetts.

Sprague on request will provide complete application engineering service for optimum results in the application of motor-start and motor-run capacitors.

★Trademark

the mark of reliability **SPRAGUE®**

Export for the Americas: Sprague International Ltd., North Adams, Mass. CABLE: SPREXINT

Stag Weekend, 'Checks' Cash Prize Offered In Mitchell Sales Drive

CHICAGO — Four "checks" totaling $281.22 plus a special $1,000 prize were offered room air conditioner dealers in connection with a Graybar-Mitchell "Roto Cone Weekend" at the Edgewater Beach hotel here Feb. 22-24.

Graybar Electric Co., Chicago distributor, showed the 1957 room air conditioner line of Mitchell Mfg. Co. during its three-day dealer convention, which started Friday night, Feb. 22, and closed with a drawing for the $1,000 cash prize on Sunday morning, Feb. 24, it was disclosed.

Attendance at the stag "Roto Cone Weekend" was free with a non-cancellable order for five Mitchell room air conditioners, according to Ray Ade, Graybar major appliance sales manager for the district.

Special trains were planned for dealers from several areas.

Announcement-invitation telegrams were sent by Graybar to its midwest area dealers in the middle of January listing place and date of the meeting and some of the prices to be offered.

These were followed by a giant broadside "Roto-Cone" invitation order form and a series of four "checks" mailed at two-day intervals.

"Roto Cone," introduced in Mitchell's 1957 line of room units, is "a new means of scientifically controlled air distribution which results in a sweep-cooling effect."

The initial check was for $65 and was signed by E. C. Walters, manager, housewares and air conditioner sales for Graybar. A complete price list for the Mitchell 1957 room cooler line was attached. The next mailing included two checks, each worth $77.41 at the Mitchell sales convention. The final check was for $61.40.

A follow-up letter the middle of February explained to dealers how they could utilize the "checks" during the convention.

The drawing for a $1,000 cash prize was made by "Miss Roto Cone" during the Sunday morning brunch.

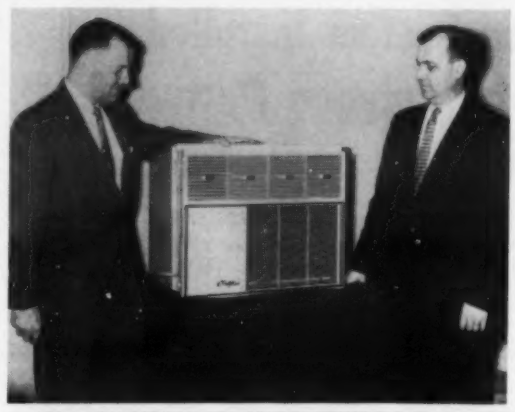
Plans 50,000 Room Unit Rate Yearly at New Louisville Plant

LOUISVILLE, Ky. — General Electric Co. plans to produce room air conditioners at the rate of 50,000 units a year beginning in July when the firm's new air conditioning plant at Appliance Park is expected to be ready.

This was announced by Paul Augenstein, manager of G-E's room air conditioner department, who said construction of the new plant is nearing completion.

"We expect to start moving in machinery in March and to start hiring then," he added. "We plan to have some 1,000 people working in the department eventually."

With completion of this building, G-E's entire room unit operation will be centered here, it was noted.



NEW Perfection "Silhouette 17" room air conditioner is inspected by W. H. Smith, director of cooling sales and W. F. Leuszler, manager of appliance sales. One of six models offered by Perfection, this unit is available in low amp and conventional models in ¾ and 1-hp. sizes.

'57 Sutton Room Unit Off-Season Program To Give Return Privileges

WICHITA, Kan.—O. A. Sutton Corp. confirmed that it has established a national program for sale of 1957 Vornado room air conditioners to dealers offering return privileges.

Company officials explained that the program requires room units must be purchased by dealers prior to April 30 for participation in the plan.

Dealers who make purchases of 1957 room conditioners before that time will have the privilege of returning one third of the quantity on June 10 and another third July 1 for credit.

Nashville Area Ups Room Unit Sales 22%

NASHVILLE, Tenn. — Air conditioner sales for 1956 in this area totaled 16,002 units for an increase of 22% over the 12,355 sold in 1955, according to Nashville Electric Service.

Refrigerator sales of 8,143 units were up 4% last year over the previous year, NES said. There were 7,862 sold in 1955.

Sales of home freezers leaped 27% as 2,244 were sold in 1956 against 1,757 the year before.

Ranges climbed 7%, water heaters 13%, and clothes dryers a whopping 59% in 1956 over the previous year. Sales results are listed below:

	1956	1955	% Increase
Air conditioners	16,002	12,355	22
Refrigerators ..	8,143	7,862	4
Freezers	2,244	1,757	27
Ranges	7,720	7,183	7
Water heaters .	6,348	5,594	13
Clothes dryers.	3,389	2,128	59
Total	43,846	36,879	

Forms Marketing, Product Planning Consulting Firm

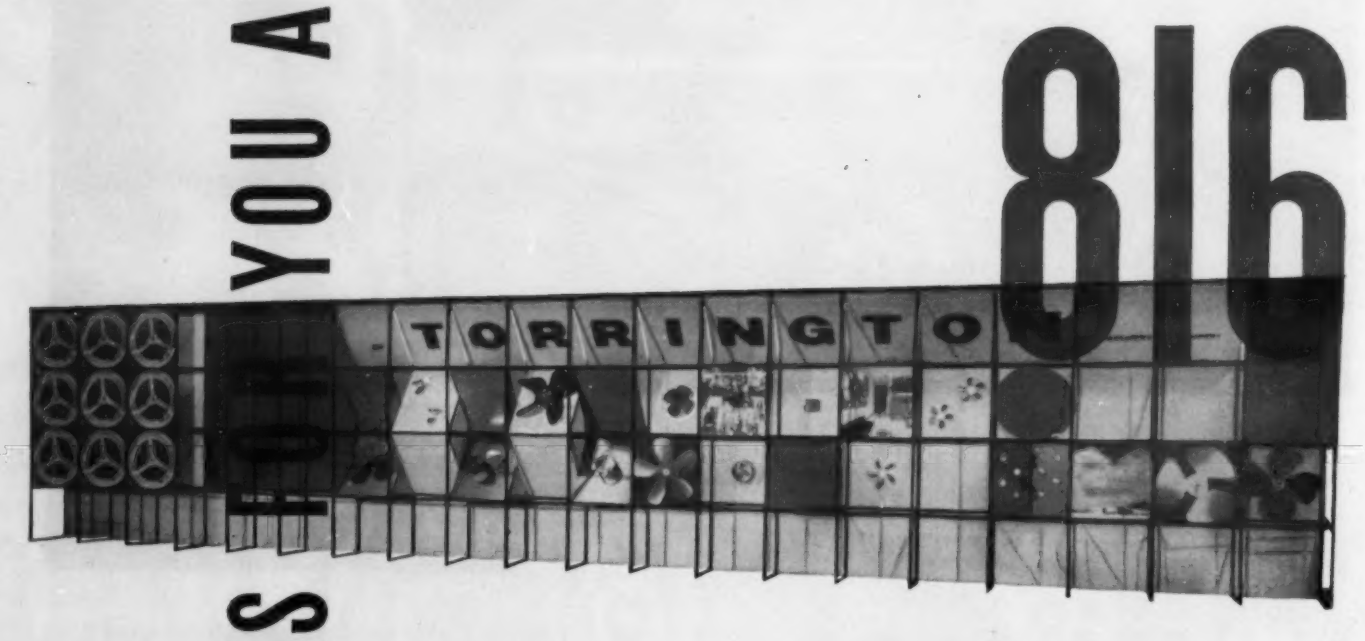
WEST ORANGE, N. J.—Irwin P. Sharpe has announced the formation of a management consulting firm that will assist companies with product planning, diversification programs, and market development.

The firm, Irwin P. Sharpe & Associates, has offices at 50 Greenwood Ave. here.

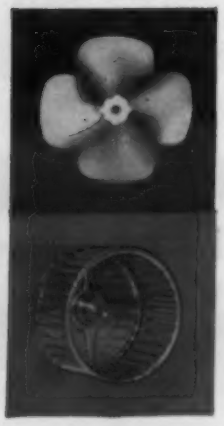
As manager of product planning with General Electric Co.'s Home Heating & Cooling Dept., Sharpe was among the first to put into practice that company's concept of product planning as a key element in modern marketing, according to the announcement.

He has had varied management experience in engineering as well as in marketing, including the development of air conditioning and heating equipment. A graduate of the University of Michigan, Sharpe is also a registered professional engineer.

THE NEWS IS YOU AT 816!



That's the number of the Torrington exhibit area at the 13th International Heating and Air Conditioning Exposition.
Date: February 23 to March 1.
Place: International Amphitheatre, Chicago, Illinois.
The News: A special display of important new Torrington air impeller products, offering a variety of advanced designs and a wide range of performance ratings to meet *new* problem requirements of the air moving industry.
In the featured spot is the industry's No. 1 development in blower unit design: A full line of the new Torrington Vari-Basic blower units in sizes ranging from 9½" to 12⅝" diameter, in full and three-quarter widths. These units are designed to industry standards; permitting interchangeable flexibility.
Don't miss the *news for you* at No. 816!



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For more information about products advertised on this page use Information Center, page 54.

Giant Cooling Tower Handling 2,500-Ton System Cuts Hotel's Air Conditioning Water Bill 96% In Six Months

CHICAGO — A giant cooling tower, installed atop Chicago's famed Palmer House hotel last June as part of a new $1,250,000 air conditioning project, has succeeded in cutting the hotel's water costs for air conditioning an estimated 96% during the six months it has been in operation, according to Palmer House chief engineer, John F. Edelhofer.

1,735 Conditioned Guest Rooms

The tower, a product of the Binks Mfg. Co., is "a real money saver" in the year-round air conditioning system that has given the Palmer House an additional 1,250 completely air conditioned guest rooms, the hotel official said. The total number of guest rooms with air conditioning is now 1,735, which is claimed to be more than any other hotel in the world.

A vertical induced draft spray filled model, the tower was custom made for the Palmer House installation at Binks' Franklin Park, Ill. plant. It is said to be the largest cooling tower in Chicago's loop area, measuring approximately 72 ft. long, 24 ft. wide, and 18 ft. high.

The tower's casing is 16-gauge mill galvanized steel, with vertical columns, laterals, cross bracing, and stiffeners of 12-in. wide heavy gauge steel plate. In order to provide maximum structural stability and protection against rust and corrosion, all parts of the framework were hot dipped galvanized.

"The cooling tower has done a great job for us here at the Palmer House," Edelhofer states. "Since it went into operation, our records indicated that our water expenses for air conditioning are approximately 4% of what they would have been under our old system. Based on our present rate of saving on water costs, we feel the tower will pay for itself within the next five years."

What lay behind the decision to install the tower?

"Simply this," says Edelhofer. "In 1955, with only 450 air conditioned guest rooms, we found that in order to produce the 1,765 tons of refrigeration per minute required to completely air condition those rooms, plus our dining and store areas, we were using approximately 1½ million gallons of city water per day—all of it going straight down the sewer after being used once.

"In order to air condition the additional 1,250 rooms called for by the new project, it was necessary to increase the total refrigeration tonnage to 2,500 tons per minute. This would have sent a total of 1¾ million gallons of water down the drain per day at a water rate of $.90 per 7,500 gals. This meant a daily water cost of over $200.

Cools, Recirculates 8,000 Gal. a Minute

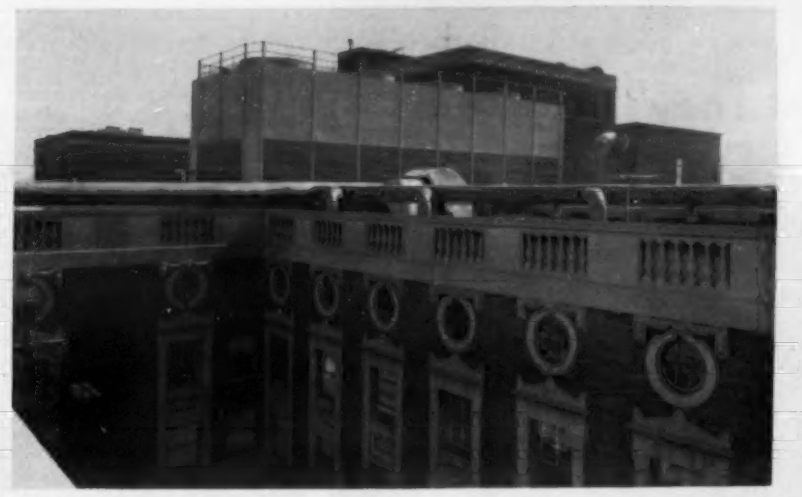
The tower cools and recirculates 8,000 g.p.m. Water flows from the cooling tower basin to the suctional side of three centrifugal pumps. Here it is forced through the condenser and sent back to the tower to be used over and over again. Over 1,000 ft. of 18-in. pipe provide the arteries which carry the water on its endless journey.

The percentage of "make-up" water required by the new equipment is estimated by Edelhofer at "not more than 4%." This water replaces the small amount removed daily through evaporation and bleed-off for chemical treatment of the circulating water. As the tower cools 8,000 g.p.m., a figure of 4% for make-up would give it a water saving performance of 7,680 g.p.m.

Under the hotel's new air conditioning system, the water enters the condenser at a temperature of 85° F., and in cooling the coils picks up heat that sends it back to the tower at 95° F. In the tower it is cooled 10° by four large aluminum alloy fans, each 144 in. in diameter. Operating on worm gear speed reducers from 20-hp. totally enclosed motors, the fans rotate at 312 r.p.m. Cooling the water 10° requires a heat removal of 500,000 B.t.u. per minute.

Three pumps, each operating on 100 hp., keep the water moving through the system. The pumps supply condensed water to three compressors which operate at 600, 1,000, and 1,250 hp.

A GALVANIZED steel stairway provides safe, easy access to the Palmer House cooling tower's fan area.



NEW cooling tower is located on the hotel roof. Note air ducts leading down through the roof which carry air to rooms.

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by

Jimmy Hatlo

NO! I NEVER WANT A SON OF MINE TO GO IN MY BUSINESS! IF HE HAS ANY SENSE HE'LL STAY MILES AWAY FROM IT AND BE SOMETHING ELSE LIKE A DOCTOR OR A LAWYER..
NOT A LAWYER! I WOULDN'T WANT ANY BOY OF MINE TO HAVE TO GO THROUGH WHAT I DID...
LISTEN TO THEM POOR OLD TYCOONS... HOW NOBLE TO SHIELD THEIR YOUNG-UNS FROM LIFES THORNY PATH... BALONEY!!
OH, YEAH.. THE HARDEST WORK THEY EVER DID WAS PUT MORE ACCORDION PLEATS IN THEIR WALLETS-
THE TRICK WILL BE TO GET THEIR YOUNG SQUIRTS TO DO ANY KIND OF HONEST WORK....
HA-HA... THESE GUYS ARE STILL RIDING ON THEIR FATHERS' COAT-TAILS!
11-29
LISTENING TO THE TOP-BRACKET CLU3-STERS PLAN THEIR OFFSPRINGS' FUTURE...
THANK AND A HATLO HAT TIP TO GIL BRADY, SCHROEDER HOTEL, MINNEAPOLIS, MINN.
JIMMY SAYS
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Deep Down, All of Us Are Brothers—Including Competitors!

This is Brotherhood Week. And it's a great idea. Especially during this particular week which finds so many of us in our industry sharing the same problems in the same place—at the International Exposition in Chicago.

In a larger sense Brotherhood Week enlists Protestants, Catholics, Moslems, odd sects, and Jews who—without giving up their distinctive and important religious differences—work together to build better relationships among men of all religions, races, and nationalities. Also, by implication, it intimates that your competitors are brothers, too—no matter what their religion.

Brotherhood Week is as American as the 4th of July, apple pie, and the Free Enterprise System. Brotherhood means giving to others the same dignity and rights one claims for himself.

Brotherhood can be achieved without weakening the loyalties or modifying the distinctive beliefs of any creed. It's just good common sense.

Brotherhood, hence, should be made a normal and natural part of everyday living.

Because one egg is bad is no reason to decide that the entire basket is rotten. Same way with people. We should judge our neighbors by their loving kindness and tolerance—and not by their race or religion or the company they represent. Hence, this is a good week to start looking for good eggs amongst our fellow workers and competitors.

Freedom to worship as we please is a basic right included in our Constitution. Like every freedom, it must be granted to others if we want to enjoy it ourselves. Freedom to compete also is fostered by our Constitution—if we compete cleanly.

Styles change. Furniture gets outmoded. Dresses have fashion alterations every season. Yet one idea introduced centuries ago still is in style today. "Love thy neighbor as thyself!"

Intolerance is like the wrong note on a piano. Any discord weakens America! Let's get rid of those sour notes—beginning this week. The concept of God the Father makes all men brothers. If you accept that concept and reject any man because he isn't like you —you betray that fundamental belief. Brotherhood is a bond with God. It is a bond of concern, love and respect, and of togetherness.

We ought to seek brotherhood because we want the "peace that passeth all understanding." Understanding is of the mind, but brotherhood is of the heart. The heart prevails where the mind fails. From the brain come atom bombs and other weapons of destruction. From the heart come love and the feeling of brotherhood. If peace is to prevail, there must be brotherhood. If there is brotherhood there must be peace.

Brotherhood takes practice, however. Here's how to practice it: Regard each man and woman as an individual. Not as a Catholic, a Protestant, or a Jew. Nor as a Negro, Anglo-Saxon or Asiatic. Look at the person—at the character and personality of this human being. Like or dislike that person for his own intrinsic qualities, and refuse to tinge that judgment by an irrelevant fact that he belongs to a different race or religion from your own.

The spontaneous feeling of brotherhood is a mark of human maturity. The American Indians, when they found a white man worthy, could take him into the tribe as a blood brother. A child, left free to appreciate kindness and generosity, sets no artificial boundaries on his love for others.

No one would be happier than Soviet Russia if the Catholics, Protestants, and Jews of the United States hated and distrusted one another. It is a foremost objective of the Communists to stir up antagonisms and sow seeds of discord among differing groups. Communists have no use for religion.

Communists also stamp out competition. Communism decries the dignity and worth of the individual, and the belief that every soul has a right to worship as he pleases, or work where he pleases. Democratic brotherhood is just the opposite. It means freedom to compete, to "be yourself."

Dr. Everett R. Clinchy puts it this way:

"By getting to know the other fellow, the one who has a different creed, race, or national origin than yours, by understanding his viewpoint, his ambitions and goals, you will find old prejudices disappear.

"You'll learn to accept or reject a person strictly on his merits as a human being and not because he happens to be different from you. We hope that during Brotherhood Week people will get together with people they know, with people they don't know, and with people they wish to know."

And during every other week, too, may we add?

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AIR CONDITIONING & REFRIGERATION NEWS

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F. M. COCKRELL, *Founder*

'The Conscience of the Industry'

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OFF THE CHEST

TECHNICAL SCHOOL ASKS MFRS. COOPERATION

Lincoln Technical Institute
Newark 5, N. J.

Editor:

I wish to take this opportunity to compliment you on your detailed understanding of the need for training in the Air Conditioning and Refrigeration field.

For the past 11 years we have been conducting resident courses on this subject in our Newark, N. J. school. We have found a fair degree of interest in the field among young men completing high school in our area. However, we have been most unsuccessful in receiving cooperation from the various manufacturers in regard to training aids and modern course material. Therefore, I will appreciate whatever suggestions you might have as to how we can improve our relationship with the manufacturer and secure greater cooperation from them in developing servicemen and technicians for the industry.

If possible, I would like to obtain a list of manufacturers who you feel from experience, are interested in furthering training in the trade and would give us cooperation in this matter.

We are now engaged in a national program of training auto mechanics in the servicing and repair of automatic transmissions, power brakes, automotive air conditioning, etc. We plan eventually to conduct a similar program in the air conditioning and refrigeration field. However, unless we can obtain the wholehearted cooperation of the industry, our training program will be severely handicapped.

Your thoughts on the matter will be most deeply appreciated.

JOHN W. DAVIES,
Director

ARTICLE ON FBI DRAWS FIRE

Anderson Refrigeration Service
Estherville, Iowa

Editor:

My husband has been in the refrigeration business for a number of years and subscribes to your AIR CONDITIONING & REFRIGERATION NEWS and also an-

(Continued on next page)

Handy Way to Subscribe

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Keep up-to-date on what's going on in your industry. You'll see action weekly in AIR CONDITIONING & REFRIGERATION NEWS. Covers latest news and gives you top how-to-do-it reports on commercial and residential air conditioning, commercial and home refrigeration: manufacturing, contracting, distributing, retailing, and servicing. Read the Industry's newspaper for profit every week. Only $6.00 per year, 52 issues (U.S. and Canada). Foreign: $10.00 per year.

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(Continued from preceding page)

other magazine. I am interested in his work and therefore read many of the articles that appear in these publications.

I was quite disturbed though, after finishing your article about the FBI not being as efficient as we thought it was.

According to your story the FBI had somehow received a tip that a bomb might be aboard your plane and therefore notified the Rochester Police Department and the airport so that they would be sure to make a check before continuing the flight. No mention was made of a special agent from the FBI being at the airport to make the check, so I am assuming there was none. If a special agent had been there I am sure the investigation would not have proceeded so carelessly. Special agents receive years of intense training and would not thoughtlessly endanger the lives of so many people. Certain incidents occur where the FBI is not allowed to actually enter the case until a certain "stage" in the case. Perhaps that was the trouble at Rochester. Maybe I am wrong, but I fail to see where the FBI lacked efficiency in this particular incident. The Federal Bureau of Investigation is a splendid organization and I feel we have every reason to continue to be very proud of it and the work that it does.

(MRS.) ARNOLD L. ANDERSON

Answer:

You could be right, and we hope you are. Although we were told repeatedly by airlines personnel that FBI men were in charge, not one such identified himself. They don't wear badges, proclaiming "I am a spy for the FBI."

Like you, Mrs. Anderson, we put our trust in The Good Lord, J. Edgar Hoover, and Dwight Eisenhower.

50-YEAR-OLD VERSE CALLED TIMELESS

Box 923
Sea Cliff, N. Y.

Editor:

I read your Dope column. Here is a verse that dates back at least 50 years, so perhaps it will be found new, for it is timeless.

If I Should Die

If I should die tonight
And you should come to my cold corpse and say,
Weeping and heartsick o'er my lifeless clay—
If I should die tonight,
And you should come in deepest grief and woe—
And say: "Here's that ten dollars that I owe",
I might arise in my large white cravat
And say, "What's that?"
If I should die tonight,
And you should come to my cold corpse and kneel,
Clasping my bier to show the grief you feel,
I say, if I should die tonight
And you should come to me and then and there
Just even hint "bout paying me that ten,
I might arise the while,
But I'd drop dead again.
—Author unknown

I. E. LEININGER

EXPORTER REQUESTS COPY OF EDITORIAL

British American & Eastern Co., Inc.
New York, N. Y.

Editor:

I saw yesterday Herbert L. Laube, president of the Remington Corp. of Auburn, N. Y. at his office. We were discussing certain export business with Mr. Laube. He showed me an interesting article entitled "WE CAN'T BUILD A GOOD BUSINESS IN DISHONESTY" which appeared in the March 21, 1955 issue of your magazine.

I would much appreciate if I could have one copy of this article, or if you have no spare copies available, I would appreciate if you kindly could have made a photostat copy (negative) of this article and send it to me. Please let me have the charges, because I do not want you to go into these expenses without being reimbursed.

Your article is very enlightening and will help our people abroad to open their eyes and better distinguish between a good and a "cheated" room cooler.

Mr. Laube asked me to transmit his best regards to you.

F. B. LIBRA

LOOKING FOR A JOB IN REFRIGERATION

75-20 Bell Blvd.
Bayside 64, New York

Editor:

I have just read your very stimulating and morale building article in your Jan. 7 and Jan. 14 newspaper. The title was "Means of Introducing Youth to Air Conditioning and Refrigeration."

The article stated how starved the industry was for capable men who are willing to go to recognized schools to attain an education in air conditioning and refrigeration.

I for one, have just completed a 21-month course consisting of heating, ventilating, refrigeration, and air conditioning. This course consisted of estimating, drafting, and servicing of units. I attended the New York Trade School in N. Y. C.

I have been inquiring at various firms in reference to employment in my field. I have received the same answer from all, "Sorry, engineers wanted." The smaller businesses only want to hire men for the summer months. I am 26 years old and married and I would find it extremely difficult to live 12 months on a 5-month salary.

I am interested in a mechanics position and I want to build my future security for my family like every other American youth. Where are these thousands of jobs your article stated; I'm just looking for one.

NORMAN INWOOD

WANTS TO ENJOY IMPORTANT FEELING

U. S. Disciplinary Barracks
Milwaukee 9, Wisconsin

Editor:

Bet it never occurred to the fraternity that if Christopher Columbus would have had a crew of modern refrigerator men, he would not have left home, since he was in quest of spices via a shorter route to India and the Islands, for spices were used then to preserve food, and "refrigeration" via chilling, was not in practice; proving how important we are now, could have been then and will remain so until the electronic atom boys take over . . . what? So, lets enjoy it while it lasts.

OTTO TINZMANN

WIN A TRIP FOR TWO TO MEXICO CITY

BIG BONUS FOR AIR CONDITIONING DEALERS!

Luxurious, all-expenses-paid vacation in one of the world's natural paradises! Yours . . . along with Bigger Profits and Better Business when you sell General Electric Commercial & Industrial Air Conditioners

Here's what you do:

First—call your General Electric Distributor—or mail coupon at right. Do it today! Then—get set for the time of your life. More profits, business and prestige—plus a free vacation you'll never forget. How can you miss? You'll be handling the finest products of their kind—and getting the strongest sales and advertising backup in the industry! You'll soon roll up the sales volume needed to send you to Mexico City. Don't delay—act now!

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Commercial & Industrial Air Conditioning Dept.
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Yes—It's Mexico City for me! Rush the whole story!

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City_____ Zone___ State_____

In Canada, Canadian General Electric Co., Ltd., Montreal

Can Air Conditioning Contractors Make Any Money?

Price Cutters Who Forget Overhead May Go Broke

By C. Dale Mericle

FORT WORTH, Texas—How much does it really cost to operate an air conditioning contracting firm? And how much of a markup is required for profit?

Answers to these questions astounded many of the contractors attending an all-day seminar conducted recently by the Fort Worth Air Conditioning Association.

Using an unusual approach, Paul V. Barmann of Lydick Barmann Co., veteran Fort Worth contractor, took figures supplied by the contractors themselves to fill in a detailed breakdown of overhead costs (see accompanying table) for a firm doing $160,000 worth of business a year.

This hypothetical firm obtains part of its revenue, Barmann explained, from bidding on "plan and specs" jobs, but the larger part of its sales involves engineering, laying out, and selling jobs.

Estimated Expenses Seemed Low to Contractors

Considerable discussion was involved in arriving at the estimated total overhead cost of $40,000, which all agreed was probably much too low, actually.

Even with this low overhead figure, contractors would have to employ a 33⅓% markup (or 25% gross profit on sales) just to break even, Barmann claims.

"A mechanical contractor, however, working on plans and specs bids only, would probably find a markup of 8 to 15% adequate," he pointed out.

Perhaps more discussion centered around the very first item in the list of overhead expenses — "your salary" — than any other. The figure of $9,600 a year, or $800 a month, was something of a compromise.

When some contractors suggested $125 a week as adequate, Barmann told them, "why you can make that much and more

(Concluded on next page)

Why Fort Worth Group Decided To 'Tell All' In Seminar

Full effectiveness of the presentation of "Operation Overhead" by Paul V. Barmann at the recent seminar held by the Fort Worth Air Conditioning Association is probably not adequately conveyed in the accompanying article, for his disclosures came as a profound shock to many contractors.

This was perhaps fitting, because the events leading up to this talk started out as a profound shock—to Barmann. It was about a year ago, he explained, that he took a good look at his business. Immediate result: Barmann had a severe heart attack.

When he got back on his feet again, he attacked the overhead problem and succeeded in pruning it from $125,000 a year down to $82,000.

Next event: During a casual conversation Barmann and another contractor member of the Fort Worth association decided to compare their books, especially as to overhead.

"We were both amazed," Barmann recalls, "to find that our expenses in the same category were so close. Sure, we may have called them by different names, but the final analysis showed it was costing the other contractor just as much to operate his business as ours."

Logical outcome of this session, which went on for several hours, was for all the contractors in the association to compare notes on costs. So for three to four hours every Monday night during the busy months of April, May, and June last year the boys "let their hair down" and discussed this serious mutual problem.

And then the Fort Worth group got the idea that the benefits its members had derived from these discussions ought to be made available to other contractors who weren't members of the association, if they were interested. Turned out they were, for more than 70 from as far as 250 miles away came in for the all-day seminar the association staged recently to discuss overhead and allied problems.

It should be emphasized that at no time in the preliminary talks or in the seminar itself was there any question of fixing prices.

An incident which occurred a couple days after the seminar may illustrate the kind of thinking that prevails in Fort Worth, at least among some contractors. One member of the association revealed that he and a nonmember contractor had both

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Use the NEWS' classified advertising columns for fast, inexpensive results.

When you open this Hermetic Compressor THE PROFIT'S YOURS

With only minutes of a man's time ...Frankell's Hermetic Compressor Opener will open any compressor, round or irregular in shape, on or off center, top or side weld. (patent pending) For further information contact

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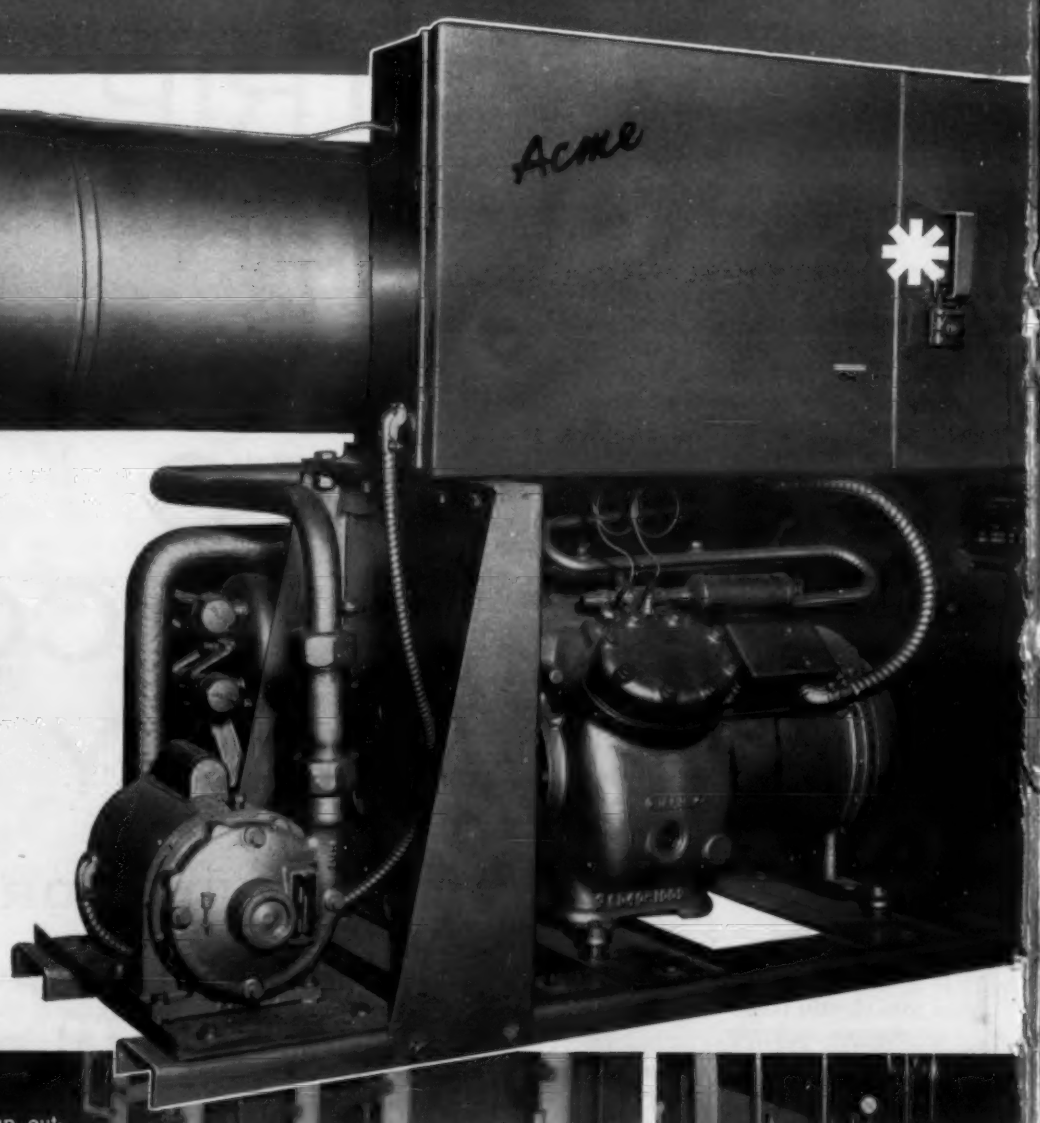


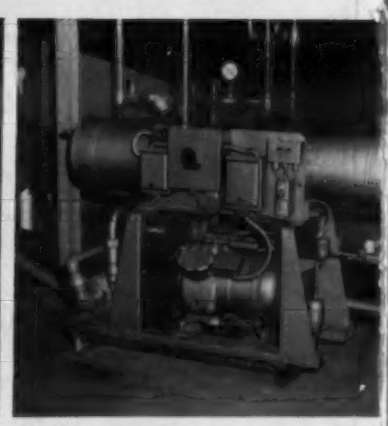
Performance Proven!

In Air Conditioning . . .

Flow-Cold chillers have chalked up outstanding performance records since introduced in 1950. Typical recent installation is one at right — one of 14 in Ohio Turnpike Service Plaza buildings.

In Industrial Cooling . . .

Flow-Cold's have been widely used to chill water, brines, oils and other liquids for industrial processes. At far right, the Flow-Cold used to control anodizing temperatures at Auto Specialties Mfg. Co., Hartford, Mich.



ACME AIR CONDITIONING REFRIGERATION

Acme INDUSTRIES INC., Jackson, Michigan

Manufacturers of Quality Air Conditioning and Refrigeration Equipment since 1919

PACKAGED CHILLERS · PACKAGED HEAT PUMPS · EVAPORATIVE CONDENSERS and COOLING TOWERS · ROOM CONDITIONERS

For more information about products advertised on this page use-Information Center, page 54.

been invited to bid on a medium size commercial air conditioning job. No other contractors were involved.

"My bid with a reasonable markup was approximately $5,900; the other was $4,800," the member disclosed. "I checked with his supplier and learned his equipment costs actually ran somewhat higher than mine. Obviously, the other contractor has slipped up somewhere. I've about decided that since it looks like I can't get the job anyway, I ought to talk to this contractor and help him find his mistakes so at least somebody will make a profit on the job."

Contractor's Overhead Expenses--

(Concluded from preceding page)

just by working for someone else, and by working for another contractor you'd avoid all the problems and worries you have in running your own business. Certainly, you should be well paid for assuming these responsibilities in your own firm."

Some contractors present seemed quite obviously startled by this viewpoint.

Like the first item, final figures arrived at for most of the other categories of overhead expense were something of a compromise. For example, it was doubtful to the majority of those present that adequate office help could be obtained today for as little as $3,600 a year.

The figure of $1,000 a year for advertising was considered by most to be too low, and the $1,500 a year rent seemed hardly enough to many contractors.

Selection of $2,000 each for gasoline expense and auto and truck maintenance brought out a "rule of thumb" from veteran contractors that vehicle maintenance always runs as much as or perhaps a bit more than gasoline costs.

Many Ignore Cost of Non-Productive Labor

"Non-productive labor" is an overhead expense many contractors are apt to ignore, Barmann emphasized, yet it's doubtful that it can be held down to the $1,800 a year figure selected here, he said.

As the accompanying tabulation shows, the overhead expense figures supplied by the contractors at the seminar totaled up to $39,950 or, for the sake of convenience, $40,000.

"If we have an overhead of $40,000," Barmann went on, "and if we're going to make a gross profit of 25%, which is equivalent to 33⅓% markup on cost, then our volume must be:

$$\frac{\$40.000}{.25}$$

or $160,000 a year."

Barmann then pointed out that since the gross profit of 25% on $160,000 in sales amounts to $40,000 and overhead expenses also total $40,000, then the net profit on this operation is exactly zero!

(This observation evoked discouraged sighs from many contractors present.)

Could Get Better Return from Stocks

"And you could do better," Barmann also commented, "by having the money you've put in your business invested in stocks and bonds, which ought to yield 5% in today's market instead of making exactly nothing for you in the contracting business.

You can't win simply by operating on volume," he warned, "because overhead increases much faster than volume.

"Two possible answers for this theoretical firm can be to reduce overhead or raise the markup, but since the overhead is already actually too low, you'll have to increase the markup," he said. "And your answer to this is true salesmanship.

"You're selling today a 3 and 5-ton job for less than you did two or three years ago," Barmann asserted. "Business in this industry is now like it was back in the Thirties. You're going to have to follow good business principles to survive."

Commenting that "you'll spend eight hours trying to figure how to cool or heat Dr. Joe Blow's office and four or five hours trying to sell him, and then he winds up buying from someone else," Barmann suggested "you'd do better to forget that sale and spend the time studying your own business."

Can You Do $160,000 On This Overhead? (Probably Not)

Your wages	$ 9,600
Office help wages	3,600
Dues & subscriptions	600
Postage, printing, etc.	600
Telephone & telegraph	900
Insurance (fire, auto, & compensation)	1,500
Legal & audit	300
Advertising	1,000
Rent	1,500
Utilities	750
Taxes on business	300
Employer's FICA taxes	800
Bad debts or collection exp.	800
Repairs & maintenance	100
Gasoline expense	2,000
Auto & truck maintenance	2,000
Tools & miscellaneous	600
Blueprints, etc.	100
Depreciation	2,000
Non-productive labor	1,800
Warranty reserve	1,600
Salesman's salary	6,000
Auto rent	600
Interest expense	600
Travel & entertainment	300
Total	**$39,950**

150-Ton Water-to-Water Heat Pump Conditions Miami Hotel

MIAMI, Fla.—A 150-ton reverse cycle or heat pump system has been installed in the new Kenilworth House by Hill York Corp.

R. S. Lafferty of Hill York Sales Corp., said the system "takes heat or energy from the unlimited supply of underground salt ocean water, eliminating all requirements for heating boilers for hotel comfort heating.

"At the same time, the design eliminates all need of cooling towers or any openings at all from the outside walls or windows, yet it gives complete thermostatic control for each room or apartment."

The Kenilworth House is owned by Arthur Godfrey, noted radio and TV star, and the Schott family, and is being operated by the Kirkeby hotel group—as is the prominent Kenilworth hotel, next door.

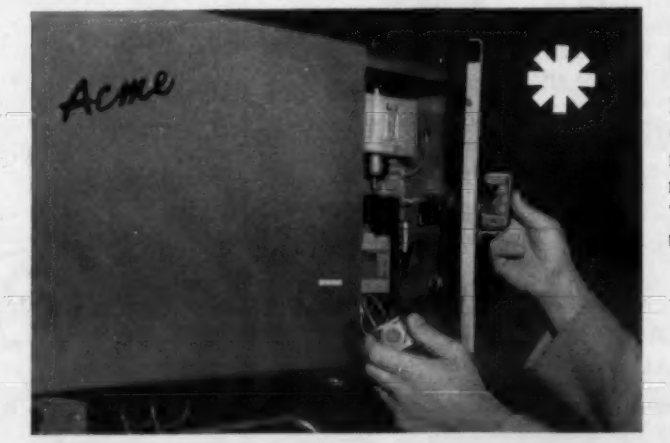
SMALL TONNAGE LIQUID CHILLER

...the Acme FLOW-COLD®

It's Flow-Cold again for '57 — the most advanced, most specified line of packaged chillers in the 3 thru 20-ton range. Whether you're an engineer requiring the best in design and construction, or a contractor looking for ease of installation and trouble-free operation, there are good reasons for heading your chiller specifications with "Acme Flow-Cold."

The Flow-Cold's components — Dry-Ex® chiller, condenser, heat exchanger and super quiet, accessible-type, hermetic compressor — are tops for advanced engineering . . . proven performers! Flow-Cold chillers are *complete* packages . . . all piping and wiring factory-installed and tested *in operation*. All necessary controls are furnished . . . now fully enclosed to stop unauthorized tampering. And Flow-Cold chillers are not only factory tested, they're *certified* . . . a "first" among chiller manufacturers.

Now add the Flow-Cold's newly streamlined wiring and piping, neat, preformed pipe insulation and the inherent compactness of Acme's Flow-Cold design . . . and you have a chiller that's just as *good looking* in an installation as it is efficient and economical to operate.

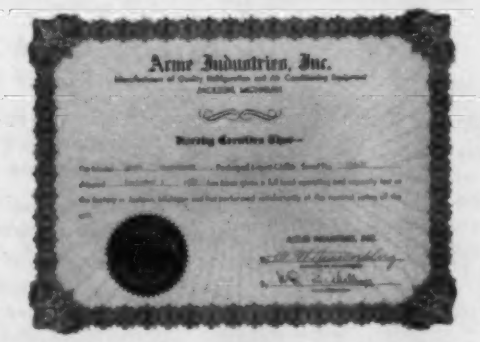


NOW TAMPER-PROOF

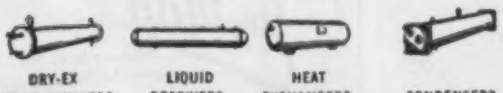
Ever experience the damage to a system from control "adjustments" by inexperienced personnel after a job is installed? The Flow-Cold's new enclosed control box can be locked to "foil the fiddle fingers" and keep servicing in the hands of the men who know how.

AND TEST-CERTIFIED

Proof of seven factory test procedures conducted under full load, Acme's Certificate of Performance guarantees contractors of ready-to-go dependability for every Flow-Cold shipped from Acme.



For advanced packaged chiller engineering in other capacities, investigate the Acme Flow-Therm, 20 thru 300 tons, and the Flow-Pac, 1¾ thru 5 hp.



Clip this coupon and attach to your letterhead to receive your new Acme Flow-Cold Catalog.

For more information about products advertised on this page use Information Center, page 54.

May Bring Ranchers Financial Relief

1-Hp. Room Unit Conditions 'Portable' Greenhouse for Forced Green Feed 'Bio-Catalyst' Cultivation from Seed to Grass

By C. Dale Mericle

DENTON, Texas—Air conditioning, in the form of a 1-hp. room unit, may help bring financial relief to farmers and ranchers struggling in the drouth-stricken Southwest and elsewhere.

The conditioner has a vital function in a newly developed small "portable" greenhouse designed for the forced cultivation of green feed which, when added to the diet of most any farm animal, results in amazing weight gains.

For ranchers raising feeder steers this means rapid increases in their weight at low cost. For the dairyman it means a cheap boost in milk production. Poultry raisers can profit as well.

At least, these are the claims made for the "Meadow-Master Green Feed Greenhouse" developed by H. & M. Mfg. Co., Inc., here which incorporates a 1-hp. Carrier 51-N-4 window conditioner obtained through Martino & Giles, local Carrier dealer.

'Machine' Provides Ideal Combination

What the "machine" does is provide an ideal combination of temperature, humidity, light, and chemicals to force the growth of oats from seed to thickly matted grass longer than 6 in. in a mere *six days*.

Added to an animal's conventional diet, this artificially grown grass functions as a "bio-catalyst" permitting the animal to obtain much fuller benefit from his regular feed.

There's nothing new about this function of green grass, but having it available 365 days a year summer or winter, wet or dry, is something else again, point out Louis A. Howsley and Roger L. Malone, who are the "H" and "M," respectively, of the manufacturing concern.

People have been trying to accomplish this since 3,000 B.C., according to Howsley, whose background is chiefly agricultural chemistry.

WINDOW unit in "Meadow Master" helps control temperatures to speed forced growth of green grass, which as supplementary feed permits amazing weight gains in farm animals. Carl Martino (above), Carrier dealer in Denton, Texas, devised unit's application and controls.

OATS grow from seed to grass 6 in. long in just six days in this "machine" developed by Louis A. Howsley (left) and Roger L. Malone to provide optimum temperature, humidity, light, and chemicals.

FARMERS like this Denton, Texas, dairyman can get 350 to 500 lbs. of green feed every day from the Meadow Master.

The firm's greenhouse design is actually an outgrowth of one developed in Europe and brought to U. S. only two years ago by these two men. Original version, while probably satisfactory in Europe's temperate climate, couldn't cope with the extreme weather conditions encountered here, they explained.

When the manufacturer refused to allow the adaptations which seemed necessary for use in this country, Howsley and Malone came up with their own version.

8-Ft. Cube

Their "Meadow Master" is in the shape of a cube measuring approximately 8 ft. in all three dimensions. It consists of a

(Concluded on next page)

YOU CAN HAVE CONFIDENCE IN

HENRY
RELIEF VALVES

The extra capacity, the extra safety, the assurance of positive protection make Henry the choice of engineers and contractors. All Henry Relief Valves in the sizes and types listed below are constructed in accordance with the standards of the ASME. In addition these valves are stamped NB to indicate National Board Certification as to capacities.

UV ASME NB National Board Certified

FOR FREON AND SIMILAR REFRIGERANTS

TYPE 523 STRAIGHT-THROUGH RELIEF VALVE

Valve has Henry "Controlled Cushion" cup seat disc construction which prevents deformation of sealing ring and assures consistent operation. This design provides positive relief at predetermined set pressures. Brass construction. Sizes (inlet x outlet) ½" MPT x ⅜" Flare; ½" FPT x ½" FPT; ¾" FPT x ¾" FPT; and 1" FPT x 1" FPT.

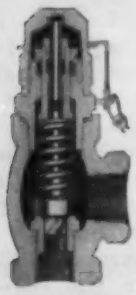
TYPE 52 ANGLE RELIEF VALVE

This forged brass relief valve is available in sizes (bottom inlet x side outlet) ¼" MPT x ⅜" Flare; ⅜" MPT x ⅜" Flare; ⅜" MPT x ½" Flare; ½" MPT x ⅜" Flare; and ⅜" ODS x ⅜" ODS.

TYPE 522 ATMOSPHERIC RELIEF VALVE

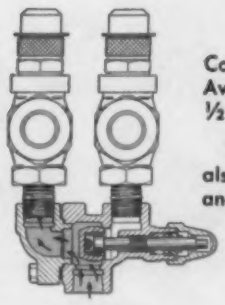
This relief valve of brass construction is for small Freon units and does not have an outlet line connection. Available with ⅛" MPT or ¼" MPT inlet connection.

FOR AMMONIA



ANGLE RELIEF VALVE

Valve has a soft metal alloy seat. Manual reseating stem permits positive emergency reseating without removing the valve from the line. Stainless steel seat insert, seat disc and main guides. Sizes (inlet x outlet) ½" FPT x ¾" FPT; ¾" FPT x 1" FPT; 1" FPT x 1¼" FPT; and 1¼" FPT x 1½" FPT.



PACKAGED DUAL RELIEF VALVE ASSEMBLY

Complies with ASME Code Requirements. Available with F.P.T. inlet connection sizes, ½", ¾" and 1".

Three-way dual shut-off valves are also available separately in various types and sizes for both Ammonia and Freon.

Packaged Assembly Simplifies Field Installation

Pressure Relief Setting Range of Henry Relief Valves, 50 to 350 PSI

WRITE FOR DATA SHEETS:

AE1303-1
Capacity ratings of Henry Relief Valves

CMC-3
A guide to the selection of Relief Devices in accordance with Chicago Municipal Code

B6-1
Henry Dual Ammonia Relief Valve Assemblies

See your Henry wholesaler for these certified relief valves.

HENRY VALVE COMPANY

Melrose Park, Ill. (Chicago Suburb) • Cable: HEVALCO, Melrose Park, Illinois

SPECIALIZED MANUFACTURERS OF THE COMPLETE LINE OF RELIEF VALVES FOR REFRIGERATION AND AIR CONDITIONING

ELBOW IN TO WALTON'S BOOTH #434 AND SEE

NEW HUMIDIFYING UNITS FOR ANY DUCT CIRCULATING SYSTEM

Walton Laboratories, Inc. Irvington 11, N. J.

For more information about products advertised on this page use Information Center, page 54.

Greenhouse--

(Concluded from preceding page)

metal framework double-glazed. Glass is necessary to admit the daylight needed for photosynthesis in the growing green grass, and the double glazing provides the insulation needed for both summer and winter operation.

The machine holds 72 "baskets" each measuring 14 by 34 by 2½ in. in which the grass is actually grown. These are placed in "culture trays" arranged in six tiers holding 12 baskets apiece.

In using the machine, one "harvests" the grass from 12 baskets every day and then refills the 12 empty baskets with oats. (There's provision for storage space at the bottom to hold the supply of oats).

Supplementary Feed

The daily charge of about 55 lbs. of oats has grown six days later into 350 to 500 lbs. of green grass, the firm claims.

This daily output of 350 to 500 lbs. is enough green grass to provide supplementary feeding, Howsley explains, for "24 dairy cows, 50 feeder steers, 150 hogs, 200 sheep, 6,000 laying hens, 2,000 turkeys, or five million guinea pigs."

Directly below the top of the machine are open tanks holding a solution of 100 gals. of water and chemicals that is fed to the sprouting baskets once a day through an automatic siphoning arrangement. The water tanks are open to maintain high humidity: 70 to 90%.

Mounted outside the machine near the top is the Carrier window unit whose blower provides constant air circulation and and holds temperatures at approximately 70° when cooling is needed. Air is discharged across the top of the open water tanks.

68-70° Temperature

Optimum growing temperature, according to Howsley, is between 68° and 70°. Thermostatic control system devised by Carl Martino, the Carrier dealer, cuts the conditioner in at 72° and off at 68°. Resistance heaters (six 600-watt cone-type heaters) in the duct cut in at 67° and out at 70° F.

Conditioner and heaters are so wired that a fuse will blow if both the compressor and heaters should try to come on at the same time, he said.

Temperature is critical in this application, Howsley emphasizes. It must be above 65° to ensure rapid sprouting and growing of the oats, but if it runs much above 70° mold will develop quickly under these high humidity conditions. And tests have shown, he adds, that 98° F., only 2% of the seeds sprout.

No fresh air is brought into the greenhouse, but the blower of the window unit completely recirculates the air once every 80 seconds.

Although the "Meadow Master" sells for more than $2,000, Howsley and Malone say it can pay for itself comparatively quickly. One turkey raiser, they claim, paid for his in seven weeks out of the increased weight gains registered in that short time. The average rancher raising feeder steers, however, might require 18 to 20 months.

Smaller, Lighter

Servel Field Tests 5-Ton Year-Round Gas-Operated Conditioner In 2 Areas

EVANSVILLE, Ind. — Field testing has been started on a new 5-ton Servel gas-operated heating-cooling air conditioner which, the company says, will be smaller in size and lighter in weight than present air conditioner models of similar capacity.

A. J. DeFino, vice president and general manager of the "All-Year" Air Conditioning Div. of Servel, Inc., revealed that the first two test models of the experimental unit had already been set up in Texas and in Indiana, and that additional test installations would be made soon in many other sections of the United States to provide performance information under various climate and weather conditions.

"The new experimental model, presently known as XFE-96-G, is of the direct-fired, single-coil type which proved so successful in Servel's 3½-ton 'Sun Valley' model," the company said. Its heating cycle will have a capacity of 96,000 B.t.u. per hour, according to Servel.

Dimensions of the experimental model are: width 62¾ in.; height, 81⅝ in.; depth, 26¼ in.; weight, 1,200 lbs.

"The compact design of the proposed unit will permit it to be shipped complete with controls in one package, and to be delivered to the site ready for installation," it was stated.

CUTAWAY of Servel's new gas-operated 5-ton year-round air conditioner now being field tested.

"It can be attached to utility services in approximately one hour.

"It will have minimum electric power requirements. The fan will be operated by a ½-hp. motor, and the auxiliary controls will require only 50 watts."

See your wholesaler for

genetron® super-dry **REFRIGERANTS**

a complete line for your every need!

genetron 11—ORANGE LABEL TRICHLOROMONOFLUOROMETHANE	For industrial and commercial refrigeration and air conditioning systems using single or multi-stage centrifugal compressors. Can also be used for either direct or indirect expansion-type systems.
genetron 12—WHITE LABEL DICHLORODIFLUOROMETHANE **genetron 22**—GREEN LABEL MONOCHLORODIFLUOROMETHANE	Used in virtually all types of refrigeration and air conditioning equipment, large and small, household and industrial, direct and indirect expansion systems. Typical units in which "Genetron" 12 and 22 are used: refrigerators, freezers, frozen food lockers, window air conditioners, home or office console units, large custom-built units for commercial comfort or industrial processes, large store units, mobile units for transportation equipment, large home units for addition to present hot air heating systems.
genetron 113—PURPLE LABEL TRICHLOROTRIFLUOROETHANE	Used in 50-ton and larger centrifugal compressors, primarily for large comfort cooling systems, brine cooling systems, and other commercial and industrial air conditioning and refrigeration systems.
genetron 114A—BLUE LABEL DICHLOROTETRAFLUOROETHANE	Used in centrifugal and rotary compressors for commercial, industrial and household refrigeration.

QUICK FACTS on genetron super-dry refrigerants

- Guaranteed exceptionally low moisture content
- Non-corrosive to standard equipment materials
- Non-toxic, non-flammable, stable, safe
- Critical and freezing points well outside range of operating uses
- Solvent action on oil helps prevent solidification or congealing of lubricant
- Freely interchangeable and may be mixed in any proportions with comparable fluorinated hydrocarbons meeting the same strict refrigerant specifications
- Aid in lubrication of equipment; generally miscible with oil
- Available everywhere, from refrigeration wholesalers throughout the country

Allied Chemical

genetron department

GENERAL CHEMICAL DIVISION

ALLIED CHEMICAL & DYE CORPORATION

40 Rector Street, New York 6, N. Y.

Visit us at Booth 147—
13th Int. Heating & Air Cond.
Exposition, Feb. 25-March 1

Humorous Jingle Produces Payments

ST. LOUIS—A catchy jingle which is printed on a sheet of gummed paper and attached to all overdue statements sent out by one midwestern retailer has proved far more effective than grim threats or references to the debtor's credit standing, it was reported.

Simply pasted on one corner of the statement, the jingle reads:

"How do you do?
Some pay when due.
Some pay when overdue.
Some never due.
How do you do?"

This bit of humor, used over a year's time, has worked out so well for the retailer that he has reordered printing of the slips several times. Collections have been around 25% greater since this idea was introduced.

Distributor Hosts Heating, Cooling Men, Offers Peerless Line

PITTSBURGH — Myers Furnace Supply Co., Inc., played host recently to heating and air conditioning dealers in the Pittsburgh and surrounding area at a Peerless Corp. regional sales meeting held in neighboring Wilkinsburg at the Penn-Lincoln hotel.

The Myers organization is the Peerless distributor covering some 50 counties in the Pittsburgh trading area.

The Peerless 1957 line of heating and air conditioning equipment was presented by the Peerless Corp. sales manager, O. U. Mutz. A featured part of the 1957 line is the newly-designed "Clima-Twin-Aire," remote air-cooled air conditioner.

W. V. "Dutch" Myers and Glenn Myers, principals in the distributing organization, were hosts and introduced the Peerless sales and engineering personnel who took an active part in this, one of several regional sales meetings to be held.

Dividend Declared On Carrier Stock

NEW YORK CITY — The board of directors of Carrier Corp. declared dividends on both the common and preferred stocks at their recent meeting here.

Payments will be made of 60 cents per share on the common stock, payable on March 1, 1957 to holders of record at the close of business on Feb. 15, 1957 and a dividend of 56¼ cents per share on the cumulative preferred stock 4½% series, $50 par value, payable Feb. 28, 1957 to holders of record at the close of business Feb. 15, 1957.

Speedy Conditioner Installation

PHOENIX, Ariz. homebuilder John F. Long, leaning on truck spare, and air conditioning contractor Landon Bates observe installation of the one-unit, completely packaged Vornado refrigerated air conditioning system on a Long-built home. Bates' crew on roof make installations on a one-every-20-minutes pace.

Contractor Installs Home Conditioners at 1-Every-20 Minutes Rate

PHOENIX, Ariz.—Use of a single package, pre-wired and pre-charged system is enabling a Phoenix home builder to supply his homes with refrigerated air conditioning at a rapid-fire, one-every-20-minutes pace.

Probably the fastest time was by a crew of four men who zipped through installations in one block of 15 homes recently in just under four hours.

When refrigerated air conditioning is specified, Home Builder John F. Long installs Vornado residential air conditioning units supplied through the Electrical Equipment Co. here.

Installations are subcontracted to Bates Sheet Metal Works, headed by Landon Bates. The units are quickly put into place with these few steps:

A small crane lifts the 500-lb. unit from the ground and four men set it into previously installed mounting brackets on the roof. They couple the unit into the cooling ductwork and make electrical connections.

Long has won a national reputation for the quality of his homes and his assembly-line construction techniques. These latter enable mass production of moderately-priced homes with many luxury features.

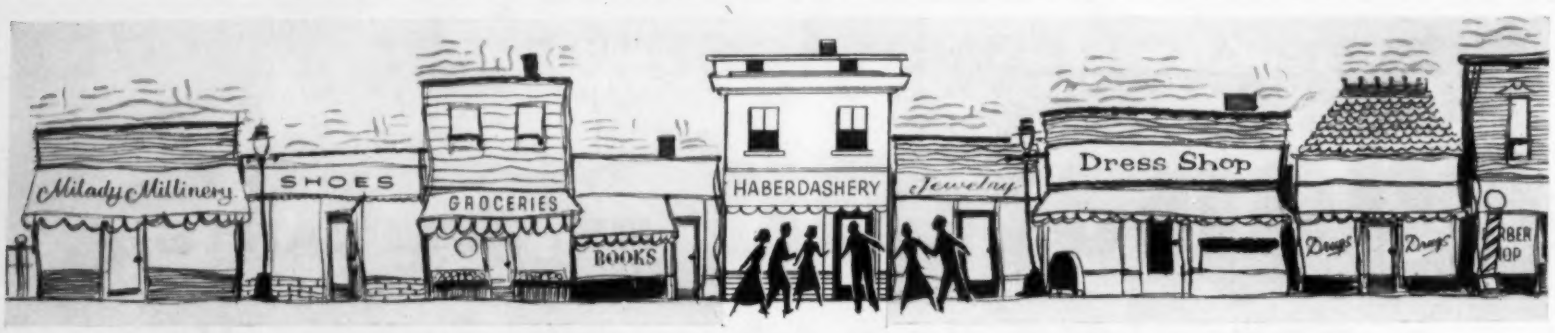
For example, he is currently offering a four-bedroom, two-bath home with family room and spacious living room—altogether 2,100 sq. ft. under roof—for less than $5.22 per sq. ft.

All Long homes—he's building 46 different elevations of nine floor plans—are completely ducted for both heating and cooling. Buyers have the option of evaporative coolers or refrigerated air conditioning.

Carl Johnson Dies

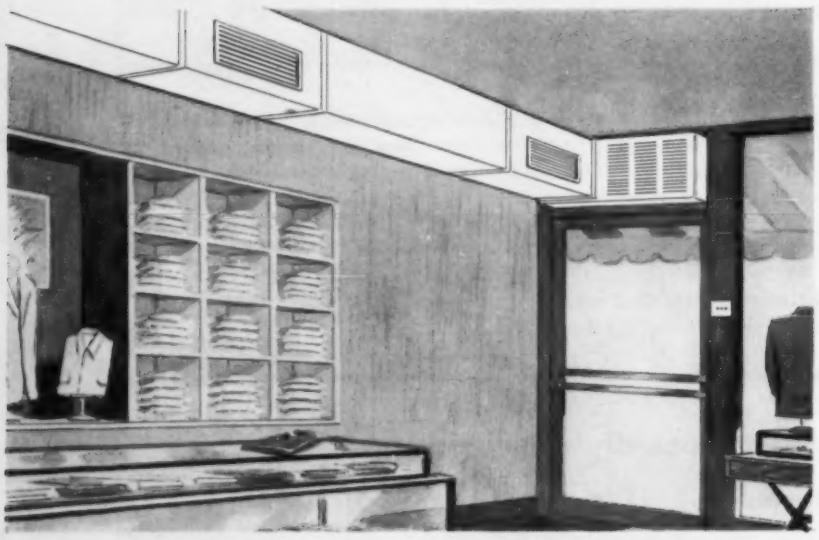
MILWAUKEE—Carl F. Johnson, 78, a director of Johnson Service Co. here since 1912, died recently at his home in Altadena, Calif.

Johnson was the son of the late Warren S. Johnson, founder and first president of the Johnson company, manufacturer of pneumatic temperature and air conditioning control systems. He invented many devices used in the pneumatic temperature control field.



9 out of 10 stores can be sold "Front-to-Rear" cooling with...

new 2 HP FEDDERS TRANSOMATIC



A SNAP TO INSTALL IN ANY STORE

The special Fedders duct kit is so simple and easy to handle that anyone who can install a window air conditioner can install the Transomatic. Prefabricated duct comes in 32" sections with 18" register sections. They snap together, eliminate cutting, soldering. Lowest cost duct work available anywhere. Use as much as required. Control panel for Transomatic locates at any convenient height.

COSTS HUNDREDS OF DOLLARS LESS THAN PACKAGED AIR CONDITIONERS: INSTALLS IN A FRACTION OF THE TIME!

Thousands of retail stores that don't want to lose business this summer are ripe for the new Fedders 2 HP Transomatic Air Conditioner right now! Especially when you can offer this heavy-duty "front-to-rear" air conditioner at a fraction of the cost they'd have to pay for regular packaged units.

The Transomatic saves money on installation too. A quick, easy transom installation doesn't disrupt business, eliminates alterations, water connections, wall openings. Unlike makeshift store applications of window units that give only spot cooling, the Transomatic carries cold air all through the store by means of a special prefabricated metal duct kit that snaps together easily in minutes.

The Fedders Transomatic air conditions the whole store, not just part. Adjustable registers in the ducts are positioned to eliminate dead spots. It can be installed in the front transom or rear window (or both for larger stores). Does not use up valuable floor or display space.

You can probably think of dozens of fine prospects for the Transomatic right this minute. So act fast, because store air conditioner sales are made months ahead of warm weather. Call your Fedders Distributor today and get the complete facts about the Fedders Transomatic.

Make it another great year with

FEDDERS

World's most-wanted, most-enjoyed, Air Conditioner

For more information about products advertised on this page use Information Center, page 54.

Warm or Cool

38-Story Seagram Building Features Wall of Air over Tinted Window Areas

SYRACUSE, N. Y.—A contract to provide complete air conditioning equipment for the 38-story Seagram building under construction at 375 Park Ave., New York City—the world's first skyscraper to use a bronze facade—was announced by Carrier Corp.

The system will be the largest single installation to date of Carrier's new low-to-the-floor "Modular Weathermaster" units designed for all-glass buildings. The tower structure scheduled for completion late in 1957 is the first in Manhattan with glass to the floor.

Some 3,600 Weathermaster units will create an invisible wall of conditioned air over the inside of the window area to neutralize any winter cold or summer heat transmitted through the glass, according to Charles V. Fenn, vice president of Carrier's Machinery & Systems Div.

EQUIPMENT PRE-TESTED

In a specially-constructed environmental laboratory at Carrier's Syracuse headquarters, special temperature, humidity, and noise level tests were conducted to prove out the system for this unique structure. The room in which these experiments were carried on was a replica of a typical Seagram office.

The tests were witnessed by representatives of Mie van der Rohe and Philip Johnson, architects, and of the firm of Kahn & Jacobs, associate architect, and Jaros, Baum and Bolles, consulting engineer.

The Modular units consist of a sound attenuation chamber, a cooling and heating coil, distribution nozzles, and a metallic lint screen within a louvered enclosure. Individual room occupants may "dial" their own weather by turning a small control knob on a sensitive thermostat located at the center unit of three per bay.

GREATEST HEATING, COOLING LOAD SIMULTANEOUSLY

Banks of Weathermaster units handling the southern exposure will be equipped with extra capacity. This side of the building will experience the greatest heating as well as cooling load, simultaneously.

"The Weathermaster system meets this acute problem in all-glass buildings through use of two heating and cooling mediums," it was explained. "In spring or fall when rooms on lower floors are shaded by nearby buildings, heating is required while upper floors need cooling to offset sun heat."

An added feature of this building is a pinkish gray tint in the 122,000 sq. ft. of glass. Blending with the bronze as it ages, it will eliminate glare, yet assure maximum daylight.

Conditioned air from apparatus on the roof and in the basement will be distributed by a few vertical risers to branch ducts serving all floors. The main ducts and other service facilities are concentrated in the core of the building.

The large percentage of glass in the wall construction results in a minimum of space in which to install the small 5-in. diameter ducts feeding air to the conditioning units. For this reason, these sheet metal pipes will run just below the floor and will supply air to the Modular conditioning units on the floor immediately above. The ducts form a slight angle as they pass through the flooring.

Clean, fresh air at a constant temperature and humidity is diffused over the windows and throughout the interior space by the ejector nozzles in the units. Air from within the room is induced by these nozzles to pass through the filter and over the coil which contains either chilled water in the summer time or hot water in the winter time.

The built-in assembly of Modular Weathermasters forms a low ledge 12 in. high by 11 in. deep. A small recessed area between the modular ledge and the glass allows drapes and venetian blinds to reach the floor.

Cooling for the system will be provided by two Carrier centrifugal refrigerating machines located on the roof. Each of the units driven by a steam turbine "has capacity to produce cooling equivalent to the melting of nearly 6½ million pounds of ice daily."

A double duct system—one carrying warm air and the other cold air—will serve interior zones. Air will be blended in a mixing chamber before entering the spaces.

The system will be installed by Kerby Saunders, Inc., mechanical contractor. The George A. Fuller Co. is general contractor for the project.

HIGH POINT of interest during The Trane Co. two-day managers' meeting was the company's newest additions to its self-contained line. Here, W. H. Ferguson, (left), self-contained sales, explains to E. S. Lloyd, co-manager of the Wilkes-Barre, Pa. regional office, special features of the small hermetic compressor used in Trane's new 10 and 15-ton self-contained units.

John J. Nesbitt Leases Building

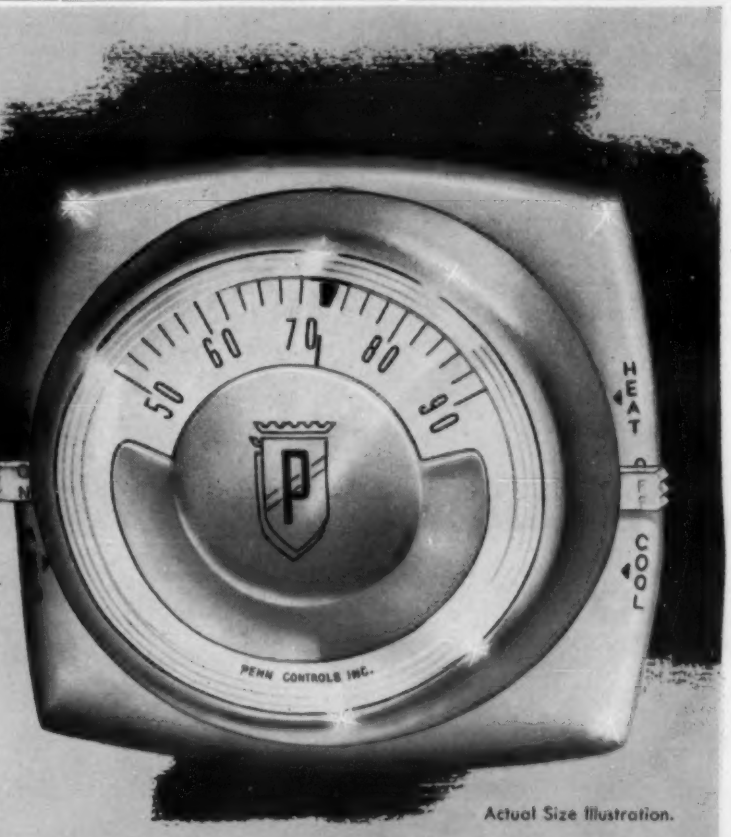
PHILADELPHIA — Frank G. Binswanger, Inc., Philadelphia realtor, announced that negotiations had been completed with John J. Nesbitt, Inc., manufacturer of heating, ventilating, and air conditioning equipment, for a long-term lease for the new one-story industrial building at Pennypack St. and Torresdale Ave. in the Holmesburg section of Philadelphia.

Aggregate rental will exceed $500,000, according to Frank G. Binswanger, realtor.

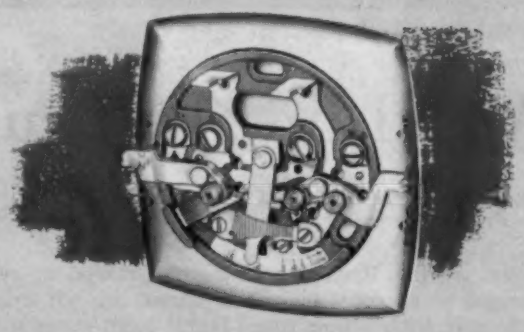
The building contains approximately 50,000 sq. ft. of floor space. The Nesbitt firm will use the property for warehousing and sales office and as an addition to its present manufacturing operations at State Rd. and Rhawn St.

TODAY'S
EASIEST-TO-READ
ROOM THERMOSTAT

IT'S NEW...
IT'S RIM-SET..
AND ONLY
PENN
HAS IT!



Actual Size Illustration.



Installation is simpler. The adjustable heat anticipator and all wiring is on sub-base where large terminals are easily accessible. Then, the thermostat is simply plugged into the sub-base. Accurate operation is assured even if sub-base is not installed in a level position. Temperature is held within one degree.

. . . you get more selling features
. . . easier installation
. . . and reduced inventory

Now . . . the newest, most beautiful look in room thermostats without sacrificing snap-acting contact action . . . the action that is proven to be the very best for sturdiness and long-life dependability. This thermostat has the largest, most easily read dial you've ever seen. And, the scale remains stationary as you dial the rim to set the temperature you want.

Various sub-bases are available for heating alone . . . for cooling only . . . or for combination heating-cooling systems. And, the *same thermostat* can be used with *any* sub-base. Thus, inventory is reduced . . . just stock variables of the sub-base.

Once you see this new, different, better thermostat, you'll want to specify and install it in your heating and cooling jobs.

PENN CONTROLS, INC. Goshen, Indiana

EXPORT DIVISION: 27 E. 38th ST., NEW YORK, N.Y.

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, GAS APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

6 Suggestions on Handling Credit

Open Account Terms Have Advantages of Faster Service, Job-Site Deliveries, Easier Accounting, Wholesaler Says

FORT WORTH, Texas—"The way we handle our credit has a direct bearing on whether or not we run a profitable business," believes Paul D. Cato, long-time head of Texas Refrigeration Supply Co., parts wholesaler here.

"If our suppliers are too lenient in their credit dealings with us, we are in turn inclined to get rather reckless in dealing with our customers," Cato told the more than 70 contractors who assembled here for the one-day seminar conducted by the Fort Worth Air Conditioning Association recently.

In addition to discussing various aspects of the credit problem, Cato offered contractors some specific suggestions:

"1. Stop trying to do more business than our capital will permit.

"2. Check up on our cost of doing business so that we will know when we have a proper markup to realize a profit.

"3. Pay close attention to our receivables. Stop billing speculative builders on open account terms and then wait for the building to be sold to collect what is due.

"4. Collect for labor and materials as the job progresses so that we do not tie up all our working capital in one or two jobs.

"5. Don't tie up all our capital in fixed assets.

"6. Arrange for a line of credit at the banks proportionate with the size of our business and reasonable demands we may expect."

Pointing out that open account terms have pitfalls, Cato emphasized, however, that "it would be almost impossible to carry on a business without these terms.

"The purpose of open account is convenience, and it allows us many advantages that we would not have if we were dealing strictly on a cash basis. Some of these advantages are: faster service, job-site deliveries, easier accounting, and many others.

"For example," Cato explained, "it is much more simple and less expensive to be able to call, write, or wire an order to your supplier, have him fill the order, and mail an invoice to your accounting department, where it can be paid along with other invoices with one operation and one check than it would be to send a check along with each order.

'Better Buyer-Seller Relationship'

"I think another important advantage of open account terms is that there is usually a better relationship between the buyer and the seller where open account terms are allowed and properly handled."

Disadvantages

Disadvantages of open account, according to Cato are varied as here after noted:

"It causes us to be lax in our dealings with our customers, especially where our suppliers are lenient. It causes us in some cases to try to do more business than we should on the capital we have available; this has a tendency to get us spread too thin financially.

"In some cases it causes overbuying, which results in added expenses to both the buyer and the supplier. The buyer is usually penalized when he attempts to return merchandise, and the supplier has an added expense of returning it to his inventory and re-selling it," Cato said.

"There are also cases of unauthorized buying by employes; this is especially true where invoices are not checked against specific orders," he cautioned.

Abuse of Open Account Terms

"Along with the advantages and disadvantages of open account terms there is one other thing we run into. This is abuse. It seems that the abuse we find more general is that of not paying on due dates, then using the supplier's money to finance the business," Cato declared.

"Although we all know that our payables should be paid in accordance with the terms extended at the time of the purchase, it is easy to pass up this due date for a few days some month, then a few more the next month, and before we realize it, we have established a policy of paying 30 days late. This usually goes from there to 60 days. Then comes the time to catch up or go on a cash basis.

"We are all much better off," Cato believes, "when we are forced to pay pretty close to the due date, even when it is necessary to borrow from the bank. It is easy to get over-extended when we begin to use our supplier's money to finance our business or to expand it."

Explains Credit Loss

Regarding credit losses, Cato believes "the most common cause of a credit loss is the fact that we fail to properly check a customer's credit and paying record before selling. It is not hard to check up on a prospective customer's paying habits. We can contact any one of several credit agencies or we can contact other firms that have sold him," he said.

"Many times we receive a call for service, or maybe for some equipment, that needs to be handled immediately if we are to get the business," Cato con-

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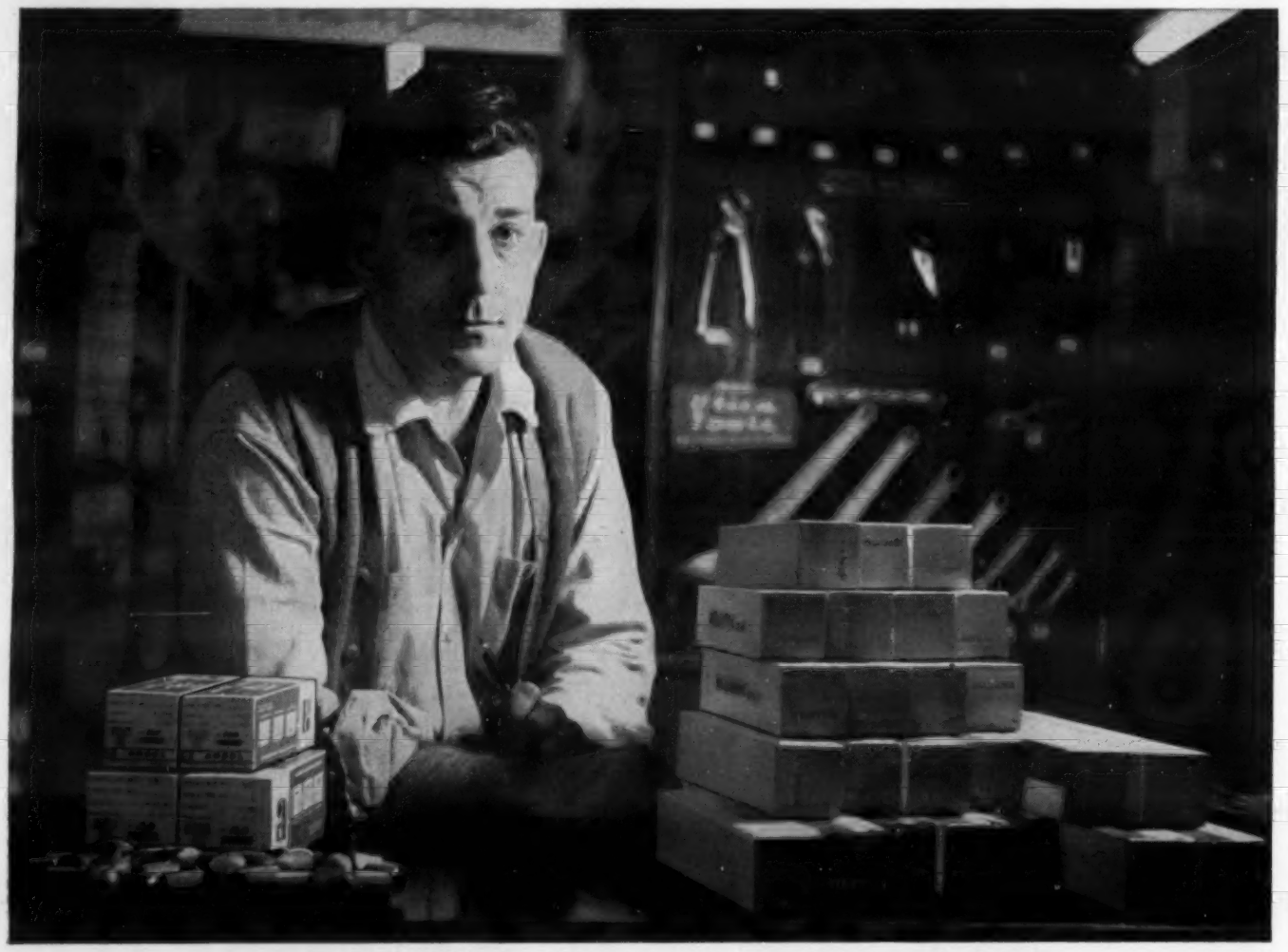

Compare the Ansul line on the left with a typical competitive line at the right.

You can see how the Ansul line will cut your dollar investment in driers up to 75%

You start to save money *immediately* when you standardize on the Ansul line of T-Flo Driers and fittings. Service engineers and contractors who have stocked the Ansul line have been able to cut their dollar investment in drier truck stock an average of 50% to 75%.

Savings like this are possible because Ansul's 4 T-Flo Drier cartridges and 8 T-Connectors are all *interchangeable.* These twelve parts give you *32 possible installation combinations.* Why tie up two or three times as much money in 32 ordinary driers? The Ansul line not only provides a complete stock at a fraction of the cost, but assures a better, faster drying job. For the largest installations Ansul T-Flo Driers can be easily manifolded or used on a by-pass to provide unlimited drying capacity. No need to stock large, expensive driers that you seldom use.

Changing a T-Flo Drier cartridge is the easiest thing in the world. Breaking leak-proof flared or sweated joints is unnecessary. Just unscrew the old drier and replace it with a new one. Hand tightening will give you a leak-proof seal. And you can install the T-Flo Drier in any position, up, down or sideways.

Ask your wholesaler about the new Dry-Eye fitting, the moisture indicator which means substantial savings in both time and money to service engineers and equipment owners. The window in the dry-eye changes color to let you see if the system is wet or dry. *Blue* means the system is dry, *pink* means excessive moisture is present.

Ansul is a national distributor for DuPont "Freon"—the time tested refrigerant. ANSUL CHEMICAL COMPANY, Marinette, Wisconsin.

ANSUL

For more information about products advertised on this page use Information Center, page 54.

FOR DEHYDRATING AND TESTING . . .

BEACH-RUSS *Portable* VACUUM PUMPS

Model O Single-Stage Pump—1 mm. vacuum, blank flange, 1 CFM, ¼ HP, weight 48 lbs.

Model A Two-Stage Pump—1/10 mm. vacuum, blank flange, 2.5 CFM, ½ HP, weight 80 lbs.

Write for prices and data.

BEACH-RUSS COMPANY
52 CHURCH ST. • NEW YORK 7, N. Y.

Credit Handling Suggestions--

(Continued from preceding page)

tinued. "This call comes from someone we have never served before. Usually, because the customer is in such a big hurry for us to get going, we deliver the merchandise or render the service before there is any mention of the time or method of paying.

"In most cases," said Cato, "this fellow, who is in so much of a rush that he fails to bring up the subject of price and time payment himself, is the fellow who will stall payment for several months, and then he will pay only if he needs another service or is unable to find someone else to pull the same trick on.

"Another cause for credit loss is selling the customer more than he can stand financially," Cato commented. "This usually brings about stalling and unjustified complaints. In a case like this we usually use up any profit we might have made on the deal in running down these complaints. We usually lose money on this kind of a deal, or at best we wind up taking the merchandise back."

How To Reduce Credit Losses

Admitting that all credit losses can't be prevented, Cato suggested they could be greatly reduced:

"First, let's check the past paying record of the customer. Second, let's ask for payment on the due date. Third, if he goes past the due date and promises to pay at some later date, contact him at that time. Fourth, let's not allow him to establish a policy of paying late. If he is a customer you want to keep, you have a much better chance of keeping him if you keep him current."

Reasons for business failures ("we were involved with nine the past year") were reviewed also by Cato, who explained that study of these and previous failures shows a pattern of causes that include under-capitalization, lack of bank credit, inefficient management, price cutting, and more overhead than realized.

As for poor management, Cato commented: "In my opinion, several of our newer and smaller businesses have gone under simply because the owner, who had been an excellent salesman or a very capable mechanic, either of which is a talent in some other organization, found that he was unable to assume the responsibility of management, which also takes talent, of his own business.

"In other words, he found it was too much of a step from employe to employer and being charged with the responsibility of seeing that the work was done, the sale made, the bill collected, and supplier paid, not to mention taking care of the regular business overhead and detail work."

Price-cutting, Cato indicated, often results in failures even though "some businesses that continue to sell on a very small margin of profit are still in business.

"I have had contractors tell me that they were not concerned about the low margin of profit they were forced to take so long as there was plenty of potential volume. They would go for volume and still come out okay.

"This works sometimes, but in some cases, though not always, it usually takes more finances to get this increased volume than most of us have," Cato warned.

He reminded the contractors that cutting prices to achieve more volume and thereby presumably more profit requires a greater increase in sales even to maintain present profit ratios than is generally recognized.

With a 33⅓% markup (equivalent to 25% gross profit on sales), a 5% price cut requires 25% more volume; a 10% cut, 66⅔% more sales; a 12½% cut, 100% more sales; a 15% price cut, 150% more volume, Cato explained.

"These figures," he added, "do not include the added operating cost that naturally goes with additional volume. One of the really bad things about this added volume is the amount of additional capital it takes to finance the business.

"Unless you have unlimited financial backing, this is a very dangerous spot to get into. You can get spread pretty thin when you attempt to make up for a low margin of profit by increasing sales beyond the limits of your working capital," he warned.

Lack of capital generally, Cato indicated, makes it difficult for a business, especially if it's short on working capital because the entire worth of the company is tied up in fixed assets and receivables.

Should Have Line Of Credit at Bank

"We also find that many businesses have no line of credit at the bank," he said. "For some reason they failed to establish a line of credit when they were in a position to get it; then after they became involved they attempt to borrow to get out and are turned down. There are very few of us who are able to operate our businesses today without a pretty substantial line of credit at the bank."

With the current "tight money" situation, however, Cato suggested "we should all

(Concluded on next page)

LOOK IN AT
WALTON'S BOOTH
#434 AND SEE
NEW HUMIDIFYING
UNITS FOR ANY DUCT
CIRCULATING SYSTEM

Walton
Laboratories, Inc.
Irvington 11, N. J.

Air Conditioning, Ordering, Installing,
Maintaining – Now Made Easier For You . . .

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It's our way of telling the world that Governair Products are guaranteed to satisfy the widest range, the most exacting capacities, and the most truly unusual space requirements.

Governair offers a SPECIAL saving of time and trouble with its complete line of Self-Contained Units. They're easier to order, since you specify only one unit in place of picking several components. Easier to install, too, since they are delivered fully tested and ready to operate with simple electrical, water and duct connections.

Best of all, Governair's quality engineering and construction assure you of lower cost maintenance so important to the purchaser.

WRITE OR CALL FOR DETAILED INFORMATION.

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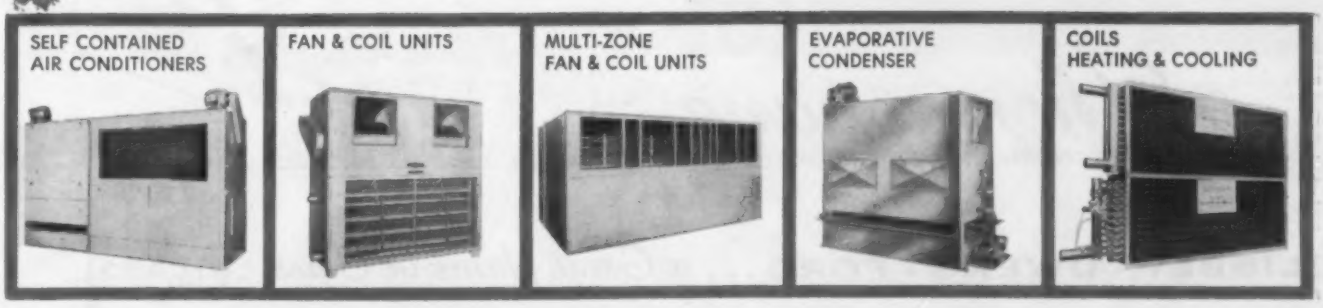

Proper Accounting Records--

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try to stay within our means and depend on borrowed capital as little as possible. Most suppliers will be pressed for operating capital and will of necessity be forced to request prompt payment.

"Some of us have grown considerably during the past few years, and it is natural for our overhead to increase from year to year, and in some cases from month to month," he also pointed out.

"It is easy to overlook such things as the increased cost of operating a truck, or additional insurance, or a new man every once in awhile. These may be small when taken separately, but when we add them up overhead has increased quite a bit.

"If we are to really keep up with what our expenses are, and where they are, it is going to be necessary for all of us to make a complete analysis of our operating statement regularly.

"Poor accounting records can wreck a business, especially where cost is concerned," Cato emphasized. "Without proper records we can usually tell we are losing money but we can't tell where we are losing it.

"Every so often we run into a business in our industry that has no records except check stubs and deposit slips. These people lose track completely of such things as job cost and general overhead," he said.

"Sometimes a person running a business like this will tell you he has no overhead because his office is at home and he does all the work himself. He has overhead all right; he just doesn't take time to find out where it is. It might just put him out of business.

Reversing Display Case Position Raises Store's Produce and Dairy Sales

CHICAGO — An immediate boost in both produce and dairy sales resulted from Hillman's Pure Food Stores' supermarket's reversing display cases of the two products recently.

Moving display cases a few feet or turning them in another direction may increase business in that department 15% or more, the firm believes.

After remodeling the southside market, Hillman's placed 45 ft. of triple decked dairy cases along one back wall catercorner from 45 ft. of new mirrored-produce cases along a side wall.

But after several days it was decided the two should be reversed. The produce case then caught attention clear across the store. Sales were upped because customers were drawn first to the produce case, then to the dairy units.

A similar change involved the smoked meat case and the specialty meat case. Now the smoked meat case is across the aisle from the other with a high flow of traffic between them.

Among the Hussmann refrigerated cases added after remodeling were 85 ft. of frozen food cases, 25 ft. fish, 45 ft. specialty meats, 90 ft. fresh meats, and 45 ft. each of dairy and refrigerated product cases.

Hart Stores To Add To Frozen Food Warehouse

ROCHESTER, N. Y. — Hart Food Stores, Inc. will erect an addition to its warehouse facilities for the storage of frozen foods, according to Jack H. Rubens, exeuctive vice president of the company.

About $1.9 Billion In Goods, Services Sold From Vendors In 1956

CHICAGO — Approximately $1.9 billion worth of products and services in 16 classifications were sold from an estimated 3,217,000 vending machines in 1956, according to the National Automatic Merchandising Association.

Plants throughout the nation "have had automatic catering installed to replace or supplement cafeterias," NAMA reported. Hot food vending units have made "considerable progress."

One of the trends of vending is toward diversification, it was pointed out. New units now vend more varied items. Vendors selling quarts and half-gallons of milk are now found in apartment houses, outside stores, at gas stations, and wherever the flow of traffic warrants installation, it was noted.

NAMA estimates that the volume of ice cream sold through vendors increased more than 10% in 1955. Also contributing to the increase were new ice cream novelties and a wider variety of ice cream items.

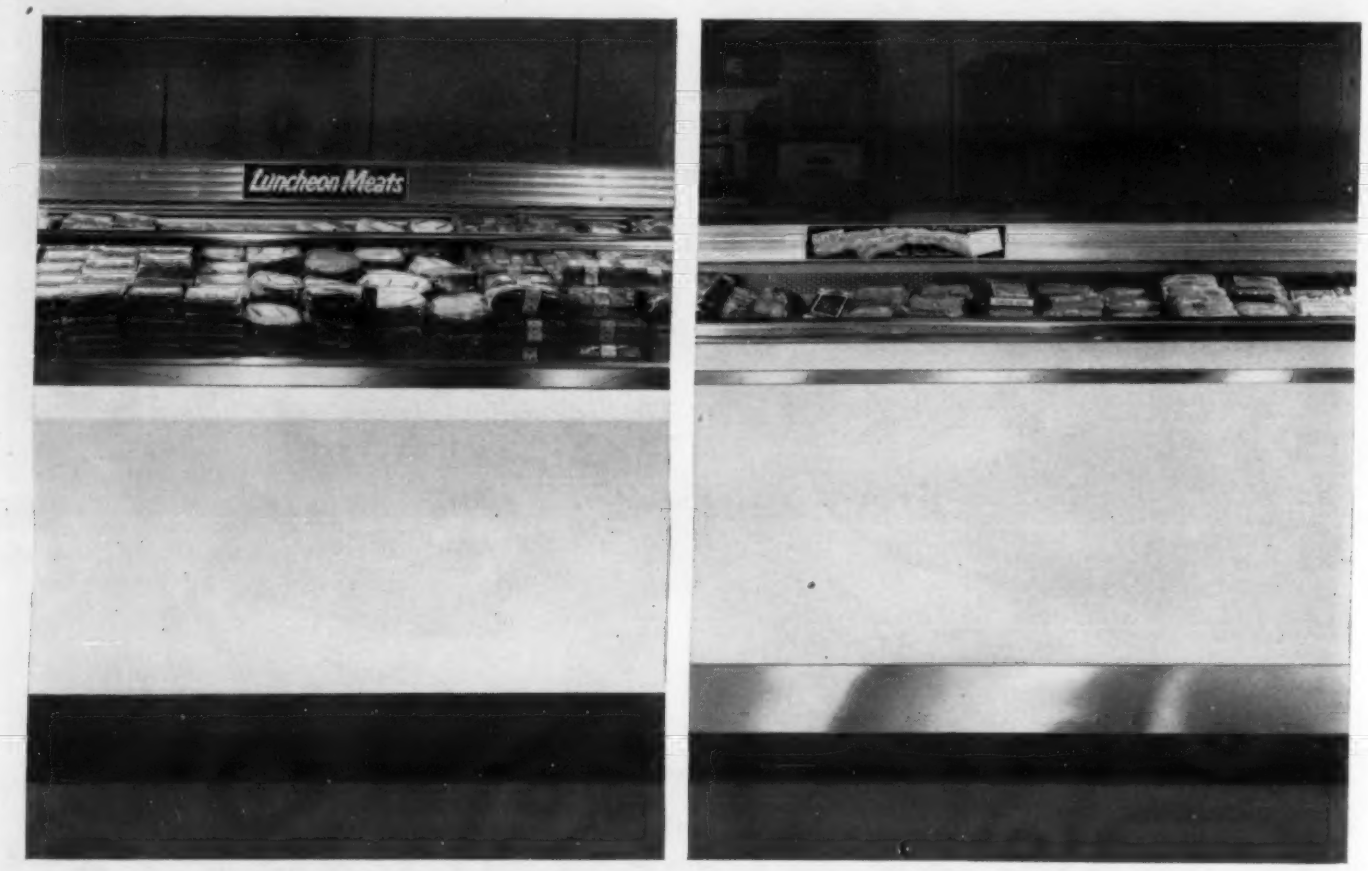
New in the coffee line of vendors are fresh-brew machines which brew coffee from ground coffee at the location. There is also an increasing appearance of cup soup units, it was added.

Expansion of pre-mix cup machines for soft drink vendors has developed. Increased activity has resulted in the placement of an estimated 50,000 more bottle machines and about 17,000 cup drink machines during 1956, NAMA said.

Estimated sales and number of machines on location as of Dec. 31 included 50,000 coffee and hot beverage units with estimated annual sales of $109 million; 2,400 fruit juice vendors, sales of $2,750,000; 6,000 hot food machines, sales of $2 million; 4,500 ice machines, sales of $36 million; 24,000 ice cream units, with $26 million sales; 30,000 indoor milk vendors, $45 million sales; 3,000 outdoor milk units, $9 million sales; 65,000 cup soft drink machines, sales of $105 million; 750,000 bottle soft drink units, $405 million sales; .1,100 sandwich machines, $2.2 million sales; and 4,000 pastry vendors, $4.8 million sales.

Among the newer machines is the giant "Lunch-O-Mat" unit which vends hot sandwiches, coffee, pastry, salads, cold milk, and makes its own change. It costs $3,900. In addition, there is a monster device, almost a midget automat all by itself, which has two columns of 12 windows each vending hot foods, stews, casseroles, beans, and soup in plastic bowls, with a matching machine which holds cold items. This device retails for about $1,200.

One leading producer of hot coffee units this year will start selling a matching bank of hot food machines. To cost between $4,000 and $5,000 for a bank of five, these will keep dishes such as meat pies refrigerated until serving time, it was explained. Then the food item will be cooked automatically and delivered complete with wooden fork at the drop of a coin.



PHOTOS taken from average woman's eye level (5 ft.) and exactly 8 ft. from the cases.

Eye-level photos show how you get

3 TIMES MORE DISPLAY WITH THERMOPANE®

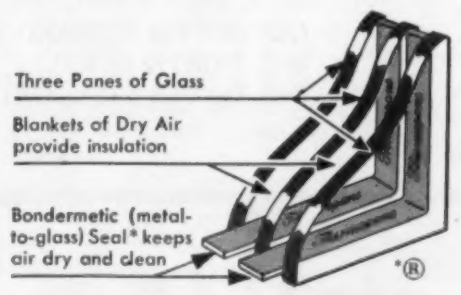
So much food is bought on impulse . . . you lose money if you hide it.

In refrigerated cases with "see-thru" fronts of *Thermopane* insulating glass, meats and frozen foods—as well as their brand names—can be spotted instantly . . . six feet, eight feet, even ten feet away.

Next time you look at refrigerated cases, look at them through your *customers'* eyes. See how much *more* display you get with *Thermopane* used by all leading manufacturers. For their names, write Libbey·Owens·Ford Glass Company, 608 Madison Avenue, Toledo 3, Ohio.

NO ORGANIC MATERIAL TO DETERIORATE

Only *Thermopane* has the famous *Bondermetic Seal®*. It's a metal-to-glass seal which prevents condensation between panes of glass and keeps out dirt. There is no organic material to deteriorate. Look for name imprinted between the panes.



Thermopane
INSULATING GLASS

LIBBEY · OWENS · FORD ... *a Great Name in Glass*

LOF GLASS®

For more information about products advertised on this page use Information Center, page 54.

ASHAE Sets Dates For Region Meetings

LOS ANGELES—The region 4 meeting and conference of American Society of Heating & Air-Conditioning Engineers here in May, will be the second of a series of meetings, Regional Director Arthur J. Hess has been advised.

PRESIDENT TO TALK TO 4 REGIONAL GROUPS

The president of ASHAE will address four regional meetings in sequence, beginning with region 5 at New Orleans May 2-4, region 4 at Los Angeles May 6-7, region 6 at Tulsa, Okla., May 10, and region 3 at Kansas City May 13.

ASHAE's council will meet at New Orleans at the time of the region 5 meeting.

Region 4 includes Arizona, California, Idaho, Nevada, Oregon, Utah, and Washington chapters.

Harry F. Haldeman, chairman of special invitations, has issued the following invitation to manufacturers from the sponsoring chapter:

"The second regional meeting and conference for Region IV of the American Society of Heating & Air-Conditioning Engineers will be sponsored by the Southern California chapter.

"The meeting is to be May 6 and 7, 1957, at the Ambassador hotel in Los Angeles. Our tentative program of subjects to be presented is attached.

CAN MAKE PACIFIC SALES CONFERENCE

"Many of your sales personnel will be attending this conference, thereby affording you an excellent opportunity to hold a Pacific coast sales meeting prior to, or subsequent to the Region IV meeting.

"Our arrangements committee will be pleased to assist you in securing accommodations for your meeting, through Gerry Bloch, care of Holland-Nurse Co., 4018 Laurel Canyon Blvd., North Hollywood, Calif.

"There will be a Western Exhibit of Air Conditioning, Heating, Ventilating, and Refrigerating Equipment held simultaneously with our conference. This exhibit has no connection with the conference but should prove of interest to you."

The tentative program includes two sessions, one each day.

COOLING SYMPOSIUM

A symposium on the air conditioning of existing buildings will feature one session. The symposium will discuss: high velocity air, water, and individual units.

Program for the other session will cover the following:

Calculations investigating the application of air conditioning to a school.

Control of air-borne sound transmissions.

Impingement filters and smog.

Recruiting personnel for our industry.

Charter Granted

GREENVILLE, S. C.—Carolina Industrial Insulation Co. here has been granted a charter by Secretary of State Frank Thornton to buy and install air conditioning, ventilating, and heating equipment.

150-Ton Conditioning System To Help Improve Rest, Sleeping Conditions for Rehabilitation Patients

MINNEAPOLIS—An air conditioning system will help speed rehabilitation of nerve, muscle, and joint disability patients in the new $1,500,000 north wing of the Elizabeth Kenny Institute under construction here.

The institute is the Kenny Foundation's international training center.

According to Dr. Frank H. Krusen, president of the Minnesota State Board of Health, rehabilitation is the restoration of handicapped individuals to the fullest physical, mental, social, and economic usefulness of which they are capable. It is expected that the air conditioning will assist this program by providing improved rest and sleeping conditions.

Heart of the cooling system will be a Trane "CenTraVac" automatic hermetic centrifugal refrigeration unit. At full capacity, the unit will supply 150 tons of refrigeration daily to a dozen strategically located remote "Climate Changer" air handling units.

Conditioned air will be carried through a system of ductwork to rehabilitation areas, medical research and laboratory spaces, and patients' quarters.

In addition to the comfort factor, the air conditioning will help eliminate stale air and excessive humidity in hydrotherapy rooms where baths are used in treatments. Humidity control will also be important in the prevention of deterioration of X-ray plates and films, highly susceptible to moisture damage.

Scheduled for 1957 completion, the new Kenny wing will also provide expanded examination and follow-up facilities, as well as a complete clinic unit, including occupational therapy, hydrotherapy, a rehabilitation gymnasium, and children's treatment areas.

Architect and engineer for the Kenny construction is Lang and Raugland. Prime mechanical contractor is Harris Bros. Plumbing Co., with Yale Engineers, Inc., subcontractor on ventilation and air conditioning. All are Minneapolis firms.

Forms Consultant Co.

CHICAGO—Charles H. Smith has formed a merchandising consultant firm, Charles H. Smith & Associates, specializing in sales training for the appliance, radio, and television industries.

He formerly was national sales director for Norge Div., Borg-Warner Corp.

"PAPPY POLAR-PAK" got a warm reception at Houston, Texas when the Coleman sales ambassador showed up for a dealer sales meeting. On hand to greet him were model Patty Bridges, "Miss Coleman Polar-Pak," and Julian A. Warren, Houston distributor of Coleman heating and air conditioning units.

FLUOR

CERTIFIED PERFORMANCE

FOR YOUR PROTECTION all performance rating data used to design Fluor Series 3 Counterflow Cooling Towers bears the stamp "Certified Performance."

To you who specify cooling towers for air conditioning and refrigeration service this means:

1. That the cooling tower offered has undergone rigorous tests for efficiency through complete ranges of actual heat transfer conditions.
2. That the rating data developed is realistic — established under tests duplicating those of virtually every operating condition.
3. That the data thus developed — and used by Fluor — has been authenticated when compared with test data furnished by an impartial, independent research organization.*

The following tables compare the performance rating data used by Fluor in designing your tower, with the test findings of an independent organization.

fp SERIES THREE

DESIGN CONDITIONS			FLUOR RATED PERFORMANCE	INDEPENDENT TEST DATA*
WET BULB TEMP.	WATER OFF TEMP.	WATER ON TEMP.	TONS REFRIGERATION	TONS REFRIGERATION
70	80	90	174	184
70	77.5	85	121	128
75	85	95	196	214
78	85	95	160	163
78	86	96	178	185
78	85	92.5	140	155
78	87.5	95	181	218
78	86	93.5	159	163
80	86	93.5	134	139

* INDEPENDENT PERFORMANCE TEST RESULTS obtained for Fluor Products Company by Texas Engineering Experiment Station on December 6 and 7, 1956 at Fluor's Cooling Tower Research and Test Center in Los Angeles, California.

The Texas Engineering Experiment Station is a part of Texas A & M College System. The station provides research facilities for the college and conducts independent tests for governmental agencies and industrial organizations.

Texas Engineering Experiment Station provides test data only and does not endorse this or any product.

Illustration at right shows a Fluor Series 3 Cooling Tower being performance tested under actual heat transfer conditions.

AIR CONDITIONING & REFRIGERATION COOLING TOWER DIVISION

FLUOR PRODUCTS COMPANY

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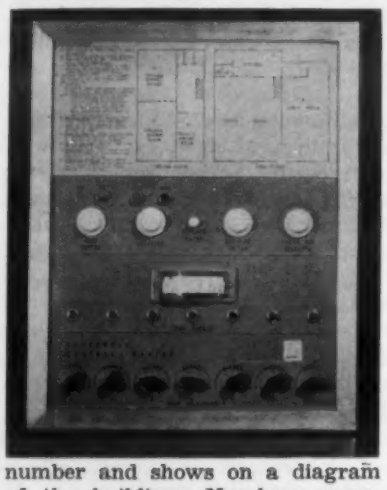
Representatives In All Major Market Areas . . .

For more information about products advertised on this page use Information Center, page 54.

Pushbutton Panel Controls Building Comfort

——KEY NO. G-240——



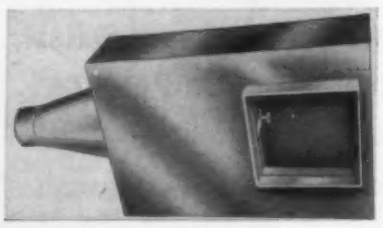
MINNEAPOLIS—A new central control panel was recently developed here by Minneapolis-Honeywell Regulator Co. to make it feasible for non-technical personnel "to apply advanced automation techniques to the control of comfort in a small commercial or industrial building."

Midget "supervisory centers" will be custom built by the company for establishments that have multiple temperature control areas but normally do not employ an operating engineer.

Dials, switches, and pilot lights permit the person who starts and stops the comfort equipment to read temperatures at various points in the building and make adjustments in individual rooms or zones all from one central point.

Complete instructions are printed on the panel. Lights signal when various pieces of equipment are in use, it was explained. One light shows when dirty filters should be replaced.

Each control zone is given a number and shows on a diagram of the building. Numbers correspond to temperature indicating and control dials. Pushbuttons give "instant" temperature readings from thermostats in each zone. Dials permit temperature adjustments to meet sudden changes in load or outside weather. These units can normally be mounted between wall studding.



High Pressure Air Terminals Offered

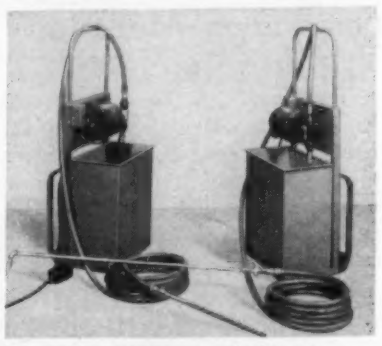
——KEY NO. G-241——

NEW YORK CITY—A series of "Agitair" high-pressure terminals for control and distribution of air in high velocity systems was recently announced by Air Devices, Inc.

Available in a range of sizes and types for overhead or perimeter air distribution in single or dual duct applications, the terminals feature non-clogging mixing valves, noise attenuation plenums insulated with neoprene coated glass fiber blankets, and a selection of square, rectangular, slot type, and circular diffusers to distribute the air draftlessly, the firm said.

Portable Cleaner, De-Scaler Handles Acids

——KEY NO. G-244——



OMAHA, Neb.—A new portable cleaning and de-scaling unit for use by refrigeration, air conditioning, and heating servicemen has been announced here by Hastings Air Control.

Called "Clean-It," the unit is said to handle acid solutions, as well as ordinary solvents, and is used to clean all types of condensers, coils, cooling towers, air handling units, blowers, etc.

Clean-It consists of two portable, vinyl coated, acidproof tanks, each with its own acidproof pump, hoses, and spray or suction fittings, it was explained. Each pump motor has a reversing switch so it can be used for either suction or pressure as desired.

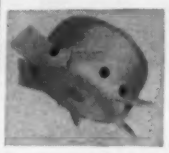
Water-cooled condensers and coil tubes are de-scaled by using the unit to recirculate acid solutions. Sediment settles to the bottom of the tank and clean solution is pumped back into the tubes. The two tanks may be used independently to clean two separate pieces of equipment at the same time, the company disclosed.

Air-cooled and evaporative condensers, coil surfaces, cooling towers, blowers, etc. are cleaned by using Clean-It to spray hot detergent or solvent solutions from one tank while the dirty water is "vacuumed" back.

Both tank units are mounted on rubber-tired wheels and have skids for going up and down stairs. Tanks can be filled wherever convenient and then wheeled to the equipment to be cleaned. All hoses have snap-on fittings for quick connection to pumps.

Reduced Depth Motors For Fans Introduced

——KEY NO. G-242——



GARRETT, Ind.—Three new, reduced-depth direct-drive fan motors were recently placed in production by Electric Motors & Specialties, Inc., the company announced.

Designed for application in remote condenser, central air conditioning systems, the units are said to provide quiet, vibration-free performance. S-60-D is rated at 950 r.p.m., S-13-H, 775 r.p.m., and S-16-H, 625 r.p.m.

For vertical or horizontal operation, the units are offered complete with light aluminum pressure-type blades and mounting components, a thermal protective device, central lubrication system, nylon thrust bearing for vertical shaft operation, and single-point oiling port.

Features include aluminum hub for all-weather resistance, rustproof iron end bell, central wool oil reservoir feeding both sections of the unit bearings. Power rated at 1/12, 1/8, and 1/3 hp., all motors operate on 230 volts. Axial lengths are about 4, 4½, and 5 in.

Air Filter Handles Lint, Oil Vapors

——KEY NO. G-243——

CLEVELAND—A new air filter, dry, oilless, and washable with extended filtering surface was introduced here recently by Air-Maze Corp.

Low-priced, model P-70 is claimed to be "especially efficient" in removing lint from recirculated air. It is suitable in applications where oil vapors cannot be tolerated.

Not sensitive to changes in air velocity within normal range, the filter has special screen grids on both sides which permits lint to be brushed off several times before washing is necessary.

Smaller Filter Drier Claims Greater Capacity

——KEY NO. G-245——

NORTH TONAWANDA, N. Y.—A new line of TMC "Molecular Sieve" filter-driers said to have much greater capacity in much smaller space is announced by Tube Manifold Corp. here.

The improved performance and small size of the filter-driers "has been made possible by the use of Linde Molecular Sieves as the desiccant," the company stated. "Only four sizes are required to handle installations ranging from ¼ to 15 tons, due to their efficiency.

"These new TMC filter-driers use the desiccant developed in cooperation with one of America's largest chemical research and production organizations. Separation of liquids is based on a totally new principle utilizing the difference between the molecular size of water, refrigerant, and oil."

The company said that an important advantage of the filter-driers "is their ability to function at peak performance when system is operating at elevated temperatures encountered in hot climates and under heavy-duty operation. The presence of oil in the refrigerant has no effect on efficiency."

"The internal screen cartridge containing the molecular sieve desiccant and the filter pad has unusually large screen area. TMC filter-driers have undergone extensive laboratory and field tests and have proved their drying efficiency under severest conditions."

Heavy Duty Unit Cools Beverages

——KEY NO. G-246——

ANDERSON, Ind.—A heavy-duty constant temperature cooling unit was recently developed here by R. F. Newby Co.

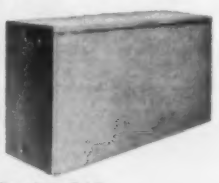
Completely self-contained, the unit may be set in a beverage barrel, the barrel filled with water, and unit plugged in. Non-adjusting temperature control is set for 32° ice bank.

FOR HEAVY LOADS OF SHORT DURATION

Ice-Cel equipped: First Baptist Church Rockwood, Tennessee

Many of America's finest churches depend on DOLE *Ice-Cels* to provide the ultimate in air conditioned comfort for their congregation. The compact design of the *Ice-Cel* Units permits easy installation in the least amount of space. Initial investment is small and operating costs are low. Applicable for churches, offices, stores, theaters, auditoriums, cafeterias, mortuaries.

Charging of the *Ice-Cel* can be accomplished at any time. A small condensing unit can operate all day and most of night if desired.



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Ice-Cel UNITS
THE BEST IN AIR CONDITIONING

U.L. & A.S.M.E. WATER-COOLED CONDENSERS ¼ TON TO 15 TONS and LIQUID RECEIVERS for EVERY REQUIREMENT

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Information Center

For *more information* on What's New products, current literature and catalogs available, equipment advertised in AIR CONDITIONING & REFRIGERATION NEWS use Key Numbers where designated or specify products advertised and we'll see that you receive this information promptly.

Products Advertised
(list name, page, and issue date)

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What's New or Current Literature Available

Key No. . . . . Key No. . . . . .
Key No. . . . . Key No. . . . . .
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Key No. . . . . Key No. . . . . .
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MAIL THIS FORM TO
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450 W. FORT ST. DETROIT 26, MICHIGAN

For more information about products advertised on this page use Information Center, page 54.

Ingersoll Offers Electronic Filter

——KEY NO. G-247——

KALAMAZOO, Mich.—An electronic air cleaner said to be low in cost, was recently introduced by Ingersoll Conditioned Air Div., Borg-Warner Corp.

Dirt-laden air is passed through an ionizer section in the "Airline" cleaner where the particles are electrically charged. Then they pass through a collector section where they are attracted to negatively charged plates. Upon contact with these plates the particles are retained by an adhesive coating. The cleaned air then circulates through the system.

Easy to install, with no plumbing or drainage lines to connect and only one electrical connection, the unit may be used horizontally or vertically, the company said. There is no added pressure drop in the circulating system at any time.

Compound Deletes Oxygen from Water

——KEY NO. G-248——

NEW YORK CITY — "Phyta-77" is a liquid compound that will delete oxygen content from water, thereby eliminating "most of the causes of corrosion," according to the manufacturer, Sealed Unit Parts Co., Inc.

"Laboratory tests prove that after addition of one part of Phyta-77 to 500 parts of water, oxygen content was safely and completely deleted," Henry Ehrens, president, claimed.

Toxic to algae and other biological fouling organisms and harmless to human skin, the liquid compound is said to treat all water conditions everywhere in the U. S.

It reportedly eliminates damage to metal, wood, brick, and aluminum from scale, rust, or corrosion. Also used as an all-purpose cleaner and all-purpose preventative, Phyta-77 doesn't need to be drained off the corrective application, it was explained. No bleed-off is necessary.

The compound is available in quart or gallon cans, 5-gal. pails, and 55-gal. drums. Also, a water analysis kit is available.

Shelton Adds 4 Sizes Of Cooling Towers

——KEY NO. G-249——

MEMPHIS, Tenn.—Recently added to the J. F. Shelton Co.'s line of cooling towers were 60, 80, 90, and 100-ton forced draft units, the company announced.

Constructed of all 14-gauge galvanized sheet material of welded construction, the "Shelco" tower is finished with a heavy waterproof inside coating and a zinc chromate primer covered with a green enamel on the exterior.

The 60-ton tower comes in two sections. By removing the wetted decks and eliminators the upper portion can be placed on the base, the firm explained. Pump and fan motors are arranged in the base to be out of the wet area, but in the cool air stream. Blowers are free from moisture always.

Shelco features interlocking drip proof doors which can be removed for servicing without hand tools, it was pointed out.

Blower Bearings Have Built-In Journals

——KEY NO. G-2410——

CLEVELAND — New "cushioned" blower bearings with built-in journals designed to eliminate precision-ground blower shafts and operate more effectively in year-round residential air conditioning systems were developed here recently by Viking Air Products.

The "Mark III" journals are hollow, precision-ground shafts themselves which accept cold-rolled blower shafts with up to .006 in. clearance. Journals increase bearing surface up to one third over bearings without journals, the firm pointed out. The increased surface reduces loads per square inch and adds to bearing life.

Metal parts of the bearing nest in large, flexible neoprene cushions which let the bearings align themselves with blower shafts, reducing bearing and shaft wear and noise.

The cushion also serves as an "extra-large" lubricant reservoir for year-round lubrication requirements. To add oil, the user pierces the self-closing neoprene cushion with the oil can spout, it was added.

The bearing is pushed by hand into a bracket projection-welded to the housing side. Bearing assembles to any interchangeable blower or to any bracket holding a bearing with 1 13/16-in. O.D. The bearing is sealed airtight, needs no adjustment for different blower discharge positions. One adapts to hold three shaft sizes: without journal, bearing holds 1-in. shafts, with two journal sizes, bearing holds either ¾ or ⅝-in. shafts.

"My Typhoon District Manager helps me figure complex jobs competitively and profitably," says Steve Filippone (left), Typhoon's Jersey City dealer.

Most Profitable
FACTORY-DEALER TEAM SET-UP IN THE BUSINESS

TYPHOON AIR CONDITIONING

- Commercial Air Conditioners, 2 to 30 tons
- Air Cooled or Water Cooled Condensers
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Find out how a Typhoon Direct Factory Franchise can make money for you. Send in this coupon today.

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Tell me about a Typhoon Franchise in my territory. Send me bulletin A-13.
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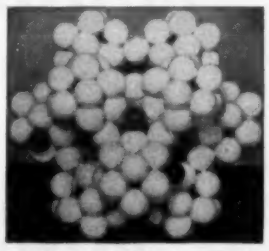
Announcing

THE FIRST AND GREATEST IMPROVEMENT IN REFRIGERANT DRIERS

TMC

MOLECULAR SIEVE FILTER-DRIERS

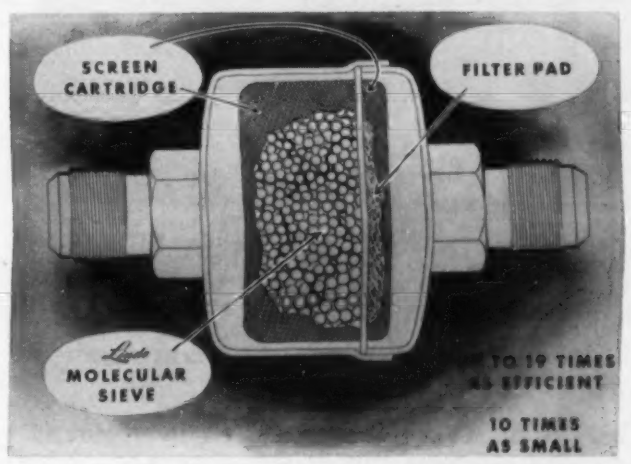


Model of a greatly magnified LINDE molecular sieve crystal unit shows how arrangement of the atoms forms sieve pores opening into a single cavity. Each crystal is composed of millions of these minute cells, connected together to form an intricate network of uniform sized pores and cavities.

The entirely new and radically improved standard of performance of TMC Filter-Driers has been made possible by the use of *LINDE* Molecular Sieves. They separate liquids on a totally new principle, — the difference between the molecular sizes of water, refrigerant and oil.

They adsorb small molecules but not large ones. They are up to nineteen times as effective as ordinary desiccants. They safeguard the system against corrosion due to acid.

ONE-TENTH THE SIZE — Capacity for capacity, efficiency is multiplied up to 19 times. Space and weight savings made possible by TMC Molecular Sieve Filter-Driers simplify system layout for the design engineer. They are easily installed on the assembly line and in the field. Efficient at all temperatures. New high adsorption capacity safeguards system performance at elevated temperatures encountered under heavy duty operation and hot climates. There is no sag-off in efficiency.



Cross section of TMC Filter-Drier shows LINDE Molecular Sieve and fiber glass filter contained in metal screen cartridge. The term "LINDE" is a registered trade-mark of Union Carbide and Carbon Corporation.

4 SIZES HANDLE ¼ TO 15 TONS — The radically improved efficiency of TMC Molecular Sieve Filter-Driers makes it possible for only 4 sizes to handle installations up to 15 tons. Engineering is simplified. Ordering, inventory, space, stock control and investment are reduced to a minimum. Space is saved on service men's trucks, and extra trips for the right size are eliminated.

TESTED BY TIME AND SERVICE — TMC Molecular Sieve Filter-Driers have been developed in cooperation with Linde Air Products Company, a Division of Union Carbide and Carbon Corporation. Years of scientific research and field testing have proved them to be the first and greatest improvement in driers since the beginning of the refrigeration industry.

COMPETITIVE PRICES are another plus value added to their many design and installation savings. The larger the system the greater the savings. Write or send coupon for full information.

TUBE MANIFOLD CORPORATION
435 BRYANT STREET • NORTH TONAWANDA, N. Y.

TMC Molecular Sieve Filter-Driers Are Another Product of the World's Largest Manufacturer of Liquid Receivers for the Refrigeration and Air Conditioning Industry

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Kindly send full information on new TMC Molecular Sieve Filter-Driers to personal attention of
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For more information about products advertised on this page use Information Center, page 54.

Olsen Has Gas, Oil-Fired Winter Cooling Line

KEY NO. G-2411

ELYRIA, Ohio — C. A. Olsen Mfg. Co. here recently announced a completely new line of gas and oil-fired winter air conditioning units.

"Luxaire" gas furnaces will be available as upflow or counterflow models with 75,000, 100,000, and 125,000 B.t.u. input. A 150,000 B.t.u. size is planned later.

All models are shipped completely assembled and wired, so only connection to gas supply, electrical lines, and ducts is required for installation, the company said.

Upflow models are 54 in. high and 26 in. deep in all sizes. The 75,000 B.t.u. size is 16 in. wide, the 100,000, 20 in., and the 125,000, 22 in. Counterflow models have the same depth and width but are 64 in. high.

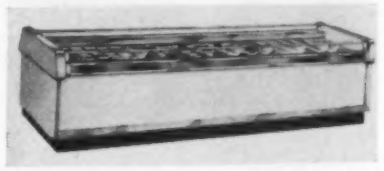
Cabinets are finished in two-tone gray baked enamel with side and rear panels in charcoal gray and front panels in light gray. All units are approved for close clearance installation at both sides and rear for small closet or utility room installation, it was explained. A return air and filter cabinet, which is enameled to match the furnace and can be installed at rear on either side, is available for top attachment of return air plenum when the unit is installed in a basement. Optional side return air intake and filter frame is also available.

Provision to add extra blower capacity which may be needed when a cooling coil is installed with the furnace, facilitates conversion to year-round air conditioning, it was noted. Upflows can take a cooling coil above the furnace with adequate space remaining for duct connection.

A new Luxaire oil-fired winter air conditioning unit will be available first with a capacity of 78,400 B.t.u. at bonnet. A 100,000 B.t.u. at bonnet unit will be announced later, it was added.

McCray Adds Low Temp Wall, Island Cases

KEY NO. G-2414

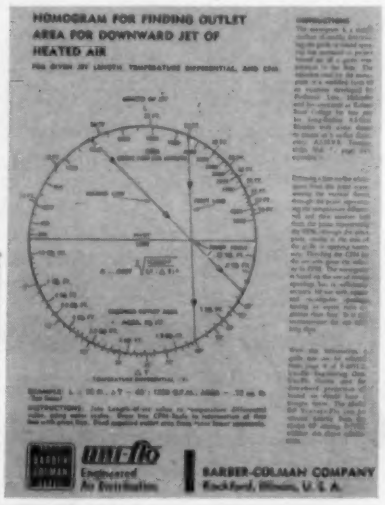


KENDALLVILLE, Ind. — McCray Refrigerator Co., Inc. recently announced addition of new self-contained low temperature wall and island type display cases for frozen foods and ice cream to its line.

Built in 8 and 12-ft. lengths for continuous installation, the cases feature large capacities and large reach-in openings, it was pointed out.

A special 2-hp. condensing unit is set lengthwise across the front of the cases behind a hinged panel for access to the assembly. Rapid automatic electric defrost is another feature, it was explained. A wide selection of superstructures is available with the wall cases.

For frozen foods the wall models will be known as HFF-8M and HFF-12M. Island units will be termed HIDFF-8M and HIDFF-12M. The 8-ft. unit of each can also be used for ice cream (HIC-8M and HIDIC-8M). Capacity of the 8-ft. wall case is 1,165 5 by 4 by 1½-in. packages of frozen foods, or 856 pints of ice cream, the island model, 931 packages or 856 pints of ice cream. The 12-ft. wall case will display 1,568 packages and the island type unit 1,372, it was added.


NOMOGRAM FOR FINDING OUTLET AREA FOR DOWNWARD JET OF HEATED AIR
uni-flo
Engineered Air Distribution
BARBER-COLMAN COMPANY
Rockford, Illinois, U. S. A.

Nomogram Finds Grille Sizes, Round Openings

KEY NO. G-2412

ROCKFORD, Ill.—A nomogram for finding outlet area for downward jet of heated air is now available from the Uni-Flo Air Distribution Div., Barber-Colman Co.

The nomogram is described as a simple method for determining size of grilles and round openings needed to project the heated air of a given temperature to the floor. Its use greatly simplifies the engineer's work, it was stated.

Pencil marks made on the face of the nomogram during its use can easily be removed, the company said. Thus, it can be used repeatedly.

Insulation Uses Layers Of Reflective Spaces

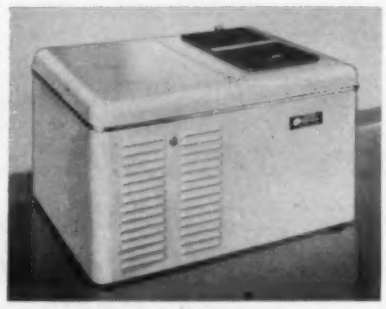
KEY NO. G-2413

NEW YORK CITY—New thermal insulation which uses multiple layers of parallel and rectangular reflective air spaces was recently developed here by Infra Insulation, Inc.

Side supports automatically stretch and keep open permanently and parallel the layers of aluminum and air space, the company said. Made with varying numbers of reflective spaces, the insulation comes in continuous lengths of 750 ft. long for both 16 and 24-in. spacing in ceilings, walls, and floors. Rolls contain 500 or 1,000 sq. ft.

One type called "4S Infra" provides four parallel rectangular spaces. Type 6 has six reflective spaces, type 2, two, and type 3, three, it was added.

Low Temp Unit Chills Metal for Impact Tests



KEY NO. G-2415

CINCINNATI—A new low temperature chilling machine 24 in. high was recently developed by Cincinnati Sub-Zero Products to chill metal specimens for impact testing.

Temperature control by model LA-120-2 from 25° to -135° F. for experimentation can be maintained. Specimens can be removed quickly from the "Lo-Boy" 2-cu. ft. capacity chilling chamber. It is 24 by 12 by 12 in. with clear opening at lid 21½ by 10½ in. Outer dimensions are 24 by 40 by 32 in.

Electric-welded, pressure-tight, the chamber is made of 10-gauge hot-dipped zinc-coated steel. It can be filled with convection fluid. Thermal capacity is about 400 B.t.u.h. at -120°, the company said. There are two ¾-hp. hermetic motor compressors with built-in thermal overload and undervoltage protection. The unit moves on four swivel-type rubber casters.

For further details about the New Products described on these pages please refer to the "Information Center" blank on page 54. Please use Key Number accompanying each item for sure, rapid identification.

New design Refrigerant Condenser

...gives far more efficiency and better, trouble-free service

With this new, sectional design Niagara condenser you avoid the many troubles due to faulty condensing and get at all times the full capacity your refrigerating plant should afford.

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You benefit from greater efficiency in condensing. A simpler method of using evaporative cooling improves heat transfer. You benefit from Niagara features that remove super-heat before condensing and keep the system purged of oil. You save 95% of the cooling water cost.

You benefit from a low first cost, lower freight cost and less expense in erection.

Capacity range is from 60 to 240 tons. Write for Niagara Bulletin 131. Find out how your plant can save expense this season.

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For more information about products advertised on this page use Information Center, page 54.

Interchangeable Blower Introduced by Viking

——KEY NO. G-2416——

CLEVELAND—A furnace blower completely interchangeable which may be substituted without testing was recently introduced here by Viking Air Products.

"B" blower's interchangeability eliminates furnace redesigning when an exact substitute fit is needed, the company said. The blower also features "Mark III" bearing with precision-ground mated journals to support the shaft in the bearing, enlarging its diameter so the same load is distributed over a larger area.

Non-flexing center disc B wheel has blades permanently welded to heavy-gauge steel end-rings by double lockseams. Center tabs on each are sandwiched between rims of the disc and welded through three thicknesses. Machined steel hubs are swaged and staked at four points to the center discs.

Four standard blower positions are available with universal lock-on feet—up or downblast, top or bottom horizontal, it was said.

2 New 'Convertible' Refrigerators Added

——KEY NO. G-2417——

LOS ANGELES—Two new 1957 models of the Krefft "Convertible" refrigerator that operates on either butane or electricity were recently made available here by Norco Sales Corp., sole U. S. distributor.

Designated "ElectriGas 300 and 600," the new models have increased capacities of about 3 and 6 cu. ft., respectively, yet retain the same outside dimensions as the preceding models. Both can be converted from electrical to butane operation in 10 seconds, the company claims.

Automatic controls have been simplified, it was noted. Located in an accessible position at the unit's front, they consist of one pushbutton which ignites the butane and a thermostat, which automatically controls temperature. Safety controls are automatic. No matches are necessary.

Refrigeration unit operates silently, has no moving parts, and the electrical system runs on either a.c. or d.c., the company said. Four full-width shelves and two door shelves, two butter compartments, vegetable crisper, and three ice cube trays are standard equipment.

'Thermo-Panel Coil' Needs No Jacketing

——KEY NO. G-2418——

BROOKLYN—A new "Thermo-Panel Coil," for application to tanks, vessels, vats, reactors, mixers, drum warmers, and valve warmers, was recently developed here by Dean Products, Inc.

For either heating or cooling, a Dean "shallow embossed" Thermo-Panel coil is bent to shape and size of trough wanted. No jacketing is needed, the company said, and there is no pipe or tube coil. Inside can be stainless while the outside is of carbon steel Jointed construction makes possible any "reasonable length" of trough.

Trough, or its modification, is made of two sheets of specified metal, welded together. Outside sheet is embossed to create flow channels for steam, hot water, or refrigerant. Inner sheet is flat and smooth.

Other applications for such formed sections are sluiceways, ducts, pipes, etc.

United Offers Upright Freezer for 1957

——KEY NO. G-2419——

HUDSON, Wis.—United Refrigerator Co. recently introduced its new "Harvest Queen" upright food freezer for 1957.

"Handi-Flexalite" is said to give light where needed on all shelves, bottom, and door shelves. It is attached to a coiled flexible cord to permit corner lighting, the company stated.

UF-176 Harvest Queen with green interior and gold trim has "Venta-Freeze" shelves. They are said to provide increased circulation of cold air over and around the frozen foods. A one-piece interior door pan with molded-in shelves and gold package retainers known as "Stow-Dor" includes a built-in frozen soup shelf and rack for holding long frozen food packages.

A 2½-gal size carton can be accommodated between shelves. A slide-out basket at bottom provides space for irregular hard-to-store items, the company said. Floor space needed is 32 by 32 in.

A built-in condensation inhibitor prevents excessive moisture on the exterior of the cabinet, the firm claims, and hermetically sealed-in-oil compressor with static condenser gives silent operation. Insulation is cork plus high density glass fiber. The unit is covered by a one-year warranty on the freezer and five years on the condensing unit.

Switch Pinpoints Electrical Failure

——KEY NO. G-2420——

ROCHESTER, N. Y.—Recently introduced here by Doyle Design & Machine Co. was a switch which pinpoints electrical failure.

"Doylite Switcheck" signals when trouble affects automatically controlled equipment. It indicates open or closed condition of a switch, proving proper mechanical position in addition to electrical condition, it was stated.

Its small neon lamp glows when the switch is open, goes out when closed. It carries a one-year guarantee, has an estimated life of 25,000 hours.

The unit measures 2 27/32 by 1⅝ by 1¾ in., uses four color-coded wires with two across the switch, two connected to 115 v., 60 cycle line.

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SIGN UP NOW AND GET YOUR SHARE OF ICE MACHINE PROFITS!

Sign Up With Scotsman! You'll share in BIG ice machine profits from the largest line of ice machines in the industry. There are more than 40 Super Cubers, Super Flakers, Super Bins and Drink Dispensers ready to make money for you!

Sell A New 1957 Line! Now Scotsman has even a better line — new improvements, new styling makes the 1957 Scotsman ice machines the finest ever put on the market. Sell the new Scotsman series and you'll sell the best machines that ever made ice!

Sell Every Prospect! Scotsman's complete line gives you the right machine for every prospect. Sell the small merchant . . . sell the medium sized ice user . . . sell the biggest firm in town! There's a Scotsman for every crushed and cube ice need!

Make Sales Faster With New Sales Aids! Hand your prospects the new 44-page Scotsman book "How To Use An Ice Machine" . . . show Scotsman machines *in action* with a new *animated* sales piece . . . influence chain buyers with a special deluxe brochure. PLUS new direct mail, publicity, advertising and sales aids. Here's the program to boost Scotsman sales sky-high!

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YES! Send me complete information about a dealer franchise for Scotsman Ice Machines.

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202 Front Street, Albert Lea, Minnesota

Remote Air-Cooled Condensers

Methods To Assure Proper Head Pressures At All Conditions Discussed at ASRE Forum

This report of the "Remote Type Air Cooled Condenser" forum held at the semiannual meeting of the American Society of Refrigerating Engineers covers the main points of the discussion.

Under the rules under which the ASRE conducts these forums, those participating in the discussion cannot be quoted directly (to assure unrestricted discussion of the subject).

The drawings were furnished to AIR CONDITIONING & REFRIGERATION NEWS, by some of those participating in the forum, to illustrate certain points made in the discussion.

AIR CONDITIONING & REFRIGERATION NEWS plans further articles on the important subject of air-cooled condensers, in future issues.

BOSTON—The air-cooled condenser, which has shot into prominence in air conditioning applications in the past few years, has some problems in application which are gradually being solved as more experience is gained in the use of this equipment.

This was brought out in the forum on "Remote Type Air-Cooled Condensers" at the annual ASRE convention here. In these forums, sponsored by the ASRE general technical committee, participants "speak their minds" on current industry developments and problems.

PROBLEMS RISE WHEN AMBIENT IS WELL ABOVE OR BELOW NORMAL DESIGN TEMP.

Most of the problems with an air-cooled condenser arise, the forum discussion brought out, when the ambient either is well above or well below the "normal" design temperature.

The more complicated problems seems to arise not when the temperatures are too high, but when they are too low, resulting in an excess of condenser capacity.

Air-cooled condensers should be sized for a 20° F. temperature differential between the ambient air and the condensing temperature, as a general rule, it was brought out at the forum.

In high ambient (hot) areas, the T.D. might be changed to 15° and in some residential applications the T.D. might be as much as 30° F. for best operation.

An air-cooled condenser can function properly in a desert area, if properly sized, but when installed in an area where the ambient drops to too low a value, the head pressure may be so low as to prevent the expansion valve from feeding properly, thus resulting not only in a malfunction of the valve, but in addition the system will not provide the proper refrigeration capacity, it was brought out in the discussion.

The problem with the expansion valve is that the pressure drop across the orifice of the valve is reduced, and the feeding of refrigerant to the coil is reduced. When the ambient drops to a low point and the head pressure drops (because of an excess of condenser capacity), the expansion valve won't feed properly even though the controls governing the inside conditions call for for operation of the valve.

SECTIONAL OPERATION OF CONDENSER A SOLUTION?

Would the use of some sort of a "sectional" operation of the condenser be a solution to this problem? Possibly, it was stated, but use of extensive control devices would be necessary. The question was also raised as to whether this might not promote short cycling of the compressor.

A reduction in condenser capacity is difficult to attain by controlling condenser fan operation. If the condenser has two

(Concluded on next page)

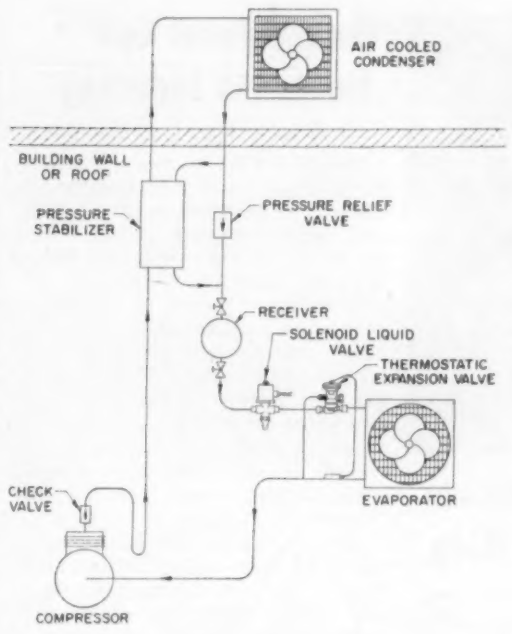


FIG. 1—Drawing showing refrigerant circuit and valve hook-up for maintaining proper head pressures under all types of ambient conditions, using the heat exchanger or "pressure stabilizer."

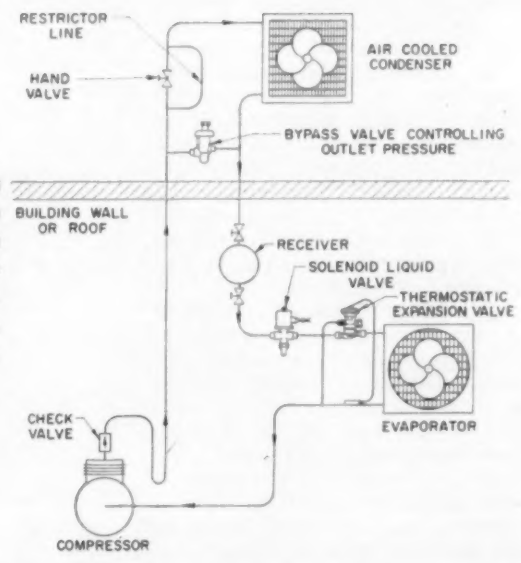
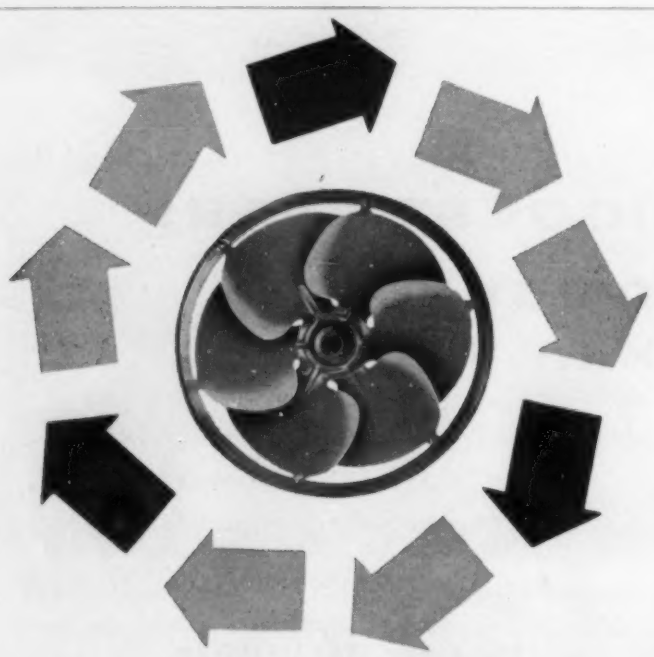


FIG. 2—Drawing showing refrigerant circuit and valve hook-up for maintaining proper head pressures under all types of ambient conditions, making use of a bypass valve controlling outlet pressure.



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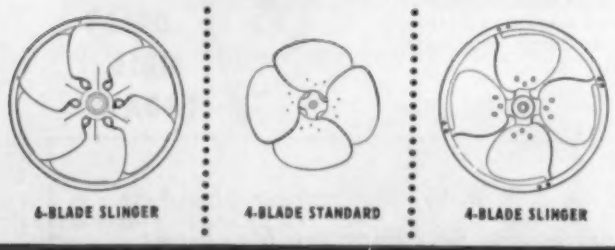

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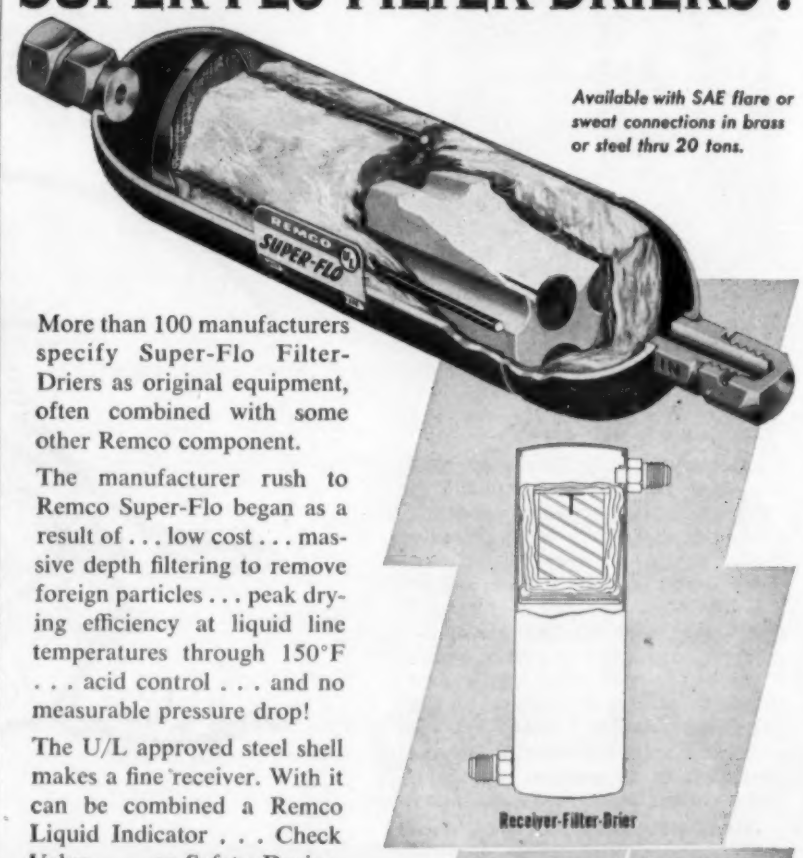

Available with SAE flare or sweat connections in brass or steel thru 20 tons.

More than 100 manufacturers specify Super-Flo Filter-Driers as original equipment, often combined with some other Remco component.

The manufacturer rush to Remco Super-Flo began as a result of . . . low cost . . . massive depth filtering to remove foreign particles . . . peak drying efficiency at liquid line temperatures through 150°F . . . acid control . . . and no measurable pressure drop!

The U/L approved steel shell makes a fine receiver. With it can be combined a Remco Liquid Indicator . . . Check Valve . . . or Safety Device.

All Super-Flo Filter-Driers and combinations are tested, dehydrated and moisture-vapor sealed for your protection. Write for low net prices and Bulletin R-11 for details.

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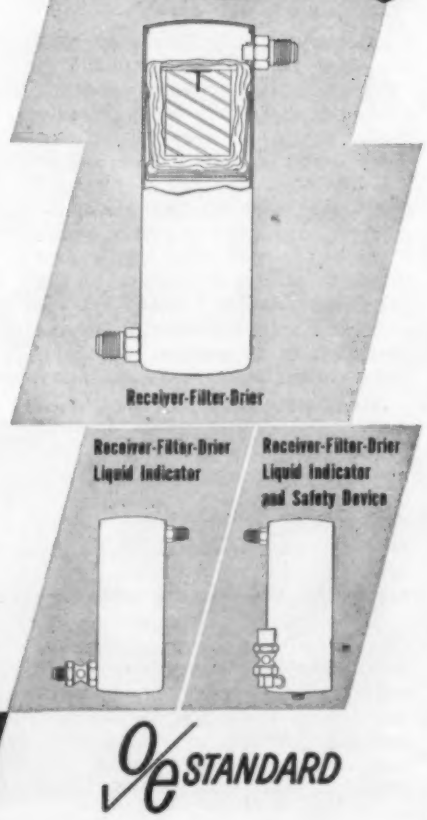


9/e STANDARD

For more information about products advertised on this page use Information Center, page 54.

Remote Air-Cooled Condensers--

(Concluded from preceding page)

fans of equal size, merely cutting out one fan won't bring about an exact 50% reduction in condenser capacity.

CAN SHORTEN FAN MOTOR LIFE

If an attempt is made to control condenser capacity by cycling the condenser fan where only a single fan is used, and fan operation is controlled by a head pressure switch, it is very likely that at certain air temperatures the fan motor will short cycle as often as every 20 seconds. This can shorten the life of the fan motor and result in annoying noises due to starting and stopping.

One factor in this is the element of natural wind velocity. A wind at 4 m.p.h. will operate the usual design of air-cooled condenser, exposed to such a wind, at 35% capacity with no fans operating.

To get away from any problems encountered with natural wind velocity, a vertical blower discharge was recommended.

Another suggestion for reducing capacity through blower action was the use of a bi-metallic control on blowers functioning to modulate the blower action through dampering.

USING PRESSURE STABILIZER

One positive way of controlling condenser capacity, it was pointed out, is through a pressure stabilizer which by-passes the liquid through a heat transfer section (which can be a reheating device) and thus serves to reduce capacity.

Some contractors have attempted to meet the problem through the use of a time delay switch on the condenser fan, aimed at preventing the low pressure switch from cutting out.

2-SPEED BLOWER MOTORS FOR HOME SYSTEM

Would the use of 2-speed blower motors accomplish the job? This might work out on a residential air conditioning system where low design temperatures aren't a factor. Use of a 2-speed blower might also have another desirable effect in reducing the noise level of the system.

Another method described for reducing condenser capacity where conditions conducive to excess capacity might prevail was that of filling up the condenser with a refrigerant through a special by-pass valve setup.

The point was raised as to whether this and other "by-pass" methods of head pressure controls would not demand extra refrigerant, and larger condenser volumetric capacity and also larger receivers.

The answer was that more refrigerant, and a larger condenser and receiver would be required. For the method described wherein the condenser is filled with liquid, the extra amount of refrigerant required is in the order of 7½ lbs. per ton for a 15-ton systems.

Questions were raised as to whether or not this might not lead to liquid slugging, and the collection of oil in some part of the system other than the compressor, both of which could be harmful to the compressor.

SUGGEST PUMP DOWN CYCLE

To take care of these factors, the application of a pump-down cycle for the system was suggested.

Another theory advanced was that any problem of excess condenser capacity because of a low ambient could be solved by moving the condenser inside—a basement, shelter, or utility room for example.

One of the participants described a system something of this type which uses dampers to permit the use of inside air or outside air depending on the ambient conditions, and which provides some auxiliary heating. A system of this type must have the condenser readily accessible to outside air (possibly by placing the condenser against the outside wall).

A question was asked as to whether or not placing the condenser on a roof may develop problems through heating up by the sun.

The answer was that there are problems, which can be avoided through the use of a check valve and a loop trap in the discharge line at the compressor.

There was a discussion of the advisability of keep a system on a continuous pump-down cycle the year around, when there were extended periods of time during which refrigeration was not required. One possible objection expressed was that this might keep oil out of the compressor.

The point was raised as to whether or not it might be a better idea to employ some sort of a heater to keep the compressor warmer.

Air Conditioning, Refrigeration Distributor Sales Up 6% for 1956

WASHINGTON, D. C. — Air conditioning and commercial refrigeration distributor sales in 1956 jumped 6% over 1955, the Bureau of the Census reports.

In addition, distributor sales were also 6% higher last December than in the like 1955 month, although down 1% from November, 1956. Air conditioning and commercial refrigeration inventories (at cost) at the end of December climbed 13% over December, 1955, but fell off 5% from November.

Sales of distributors of electrical appliances, TV, radio sets, and electronic parts improved 4% during 1956 over the previous year, rose 2% over December, 1955 during the final month of last year, and were up 7% over November. Inventories on Dec. 31 dropped 10% from last November.

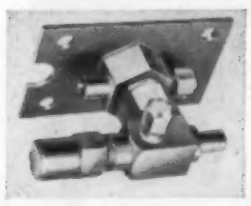
Plumbing, heating equipment, and supplies distributors' sales increased 3% in 1956 over the previous year, but skidded 6% in December from December, 1955 and 15% from November. Inventories were 1% higher at the end of December than on Dec. 31, 1955.

Sales of all types of merchant wholesalers as a group for the year 1956 were 8% ahead of 1955, the Census Bureau says. December merchant wholesaler sales were off 6% from November, but rose 3% over sales in the final month of 1955.

Inventories at year-end were down 2% from stocks on hand Nov. 30, but increased 11% over December, 1955, it was added.

...designed for Flexibility

This new break-away type spud valve is engineered for compressors used for remote air cooled residential systems. It has a new built-in mechanical rotating connector that allows the valve to be rotated a full 360°. This new feature permits the valve to be placed in a direct line with suction or discharge tubing for easier, more efficient connection . . . permits instant compressor replacement in the field. Available in all standard sizes.



New Rotalock Valve also available with mounting bracket as shown.

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Call For Ready-Power
NATURAL GAS
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and give your customers all these advantages:
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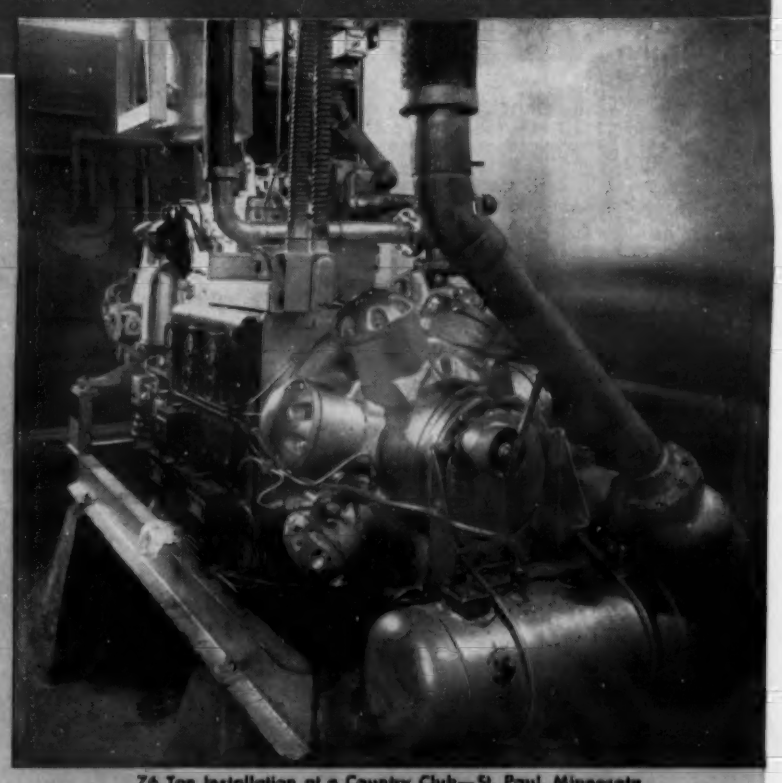
Fuel cost less than 1¢ per ton-hour
based on gas at 60c per 1000 cu. ft.



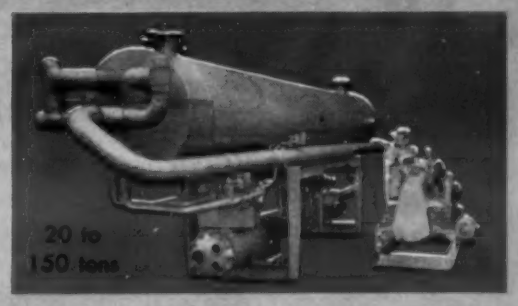
76 Ton Installation at a Country Club—St. Paul, Minnesota

Ready-Power Air Conditioning Units offer every advantage of automatic air conditioning—*at lowest operating costs.* Designed to operate efficiently on economical natural gas, Ready-Power Air Conditioning Units feature a unique system of capacity modulation for high efficiency *continuous cooling.*

Automatic controls allow continuous operation at varying speeds to meet all weather conditions and load requirements. This assures *precise control* of both *temperature* and *humidity* and maximum operating economy at all times.

Ready-Power Air Conditioning Units are adaptable to new or existing installations in sizes up to 76 ton. Multiple units of more than 150 ton capacity have proved highly successful.

Write for complete information.



Matched "Chiller Packages" are now available for all models. Factory piped, wired and tested, these Ready-Power "Packages" give you completely integrated refrigerant systems, require a minimum of installation work, reduce costs.

Visit the Ready-Power Booth, No. 1145, at The Heating and Air Conditioning Exposition, Chicago

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Manufacturers of Gas and Diesel Engine Driven Generators and Air Conditioning Units; Gas and Diesel Electric Power Units for Industrial Trucks

For more information about products advertised on this page use Information Center, page 54.

Heating Men Flock to Distributor's Air Conditioning School

Actual Work Teaches Home Conditioning Service, Installation; 930 Heating Dealers Fill 20-Man Weekly Class 8 Weeks Ahead

DETROIT—A school to teach men whose background has primarily been in heating how to install and service residential air conditioners has met with overwhelming response here.

The school is sponsored by the Star Steel Supply Co. and the Burton Co., distributor of Airtemp air conditioning in this area.

It offers a solid week of practical training, with the trainees doing the actual work on equipment supplied by the distributor.

"So great is the need for such training here," declared Carl Beltz, who organized the school, "that a single mailed announcement to some 930 heating dealers in metropolitan Detroit has filled the class for eight weeks, with more reply cards coming in daily."

Those signing up are not only service and installation men for heating contractors but sometimes the contractors themselves, Beltz said.

A fee of $20 per man is charged to help cover the cost of materials used and supplied to the student.

The school is set up in a commercial building on Hamilton Ave. at Webb, centrally located for the Detroit area. Instruction runs throughout the day for five days.

EXPLAINING THE OPERATION of an expansion valve to a couple of trainees is Carl Beltz (c.) of the Burton Co., sponsor of the school.

Because of limited facilities, only 20 students can be admitted each week, Beltz said. They are instructed by Mike Schwann, an independent air conditioning contractor with a long background in refrigeration service and a license to teach. He taught refrigeration in the Navy during World War II.

'Strictly Service, Installation School'

"This is strictly a service and installation school," Beltz emphasized. "No sales or application instruction is given. We are trying only to teach basically heating men how to install residential air conditioning units and how to take care of them after they are installed."

For this reason, Schwann spends only one day—the first day of instruction—on theory. He gives the students a little refresher on how the refrigeration system works. Richard Parlin, Sporlan Valve Co. representative, helps out by showing a strip film on expansion valves and driers and explaining their operation.

"Monday is the only day the men sit down," Schwann commented. "For the next four days, they work on the equipment."

Equipment available includes a combination heating and cooling unit, an overhead cooling unit, room air conditioners, air and water-cooled condensing units, and a cooling tower. Actual installations are made in the classroom.

The class is divided into four small groups so that each man has a chance to do the work himself. Instruction covers piping, air handling, charging, control operation, wiring, and setting equipment.

EVERYBODY WORKS at this air conditioner service and installation training school designed primarily for men working in the heating field. Mike Schwann, instructor (in shirt with large checks) goes from group to group, checking up on progress.

THREE STUDENTS try to find a wiring fault in a simulated air conditioner control system, while Schwann looks on.

Taught To Test, Check, Start

The men are taught complete procedures for testing, checking, and starting equipment. They are shown the causes of compressor failure and control failure. They see what takes place in the evaporator and how the lack of air will frost up a coil.

When installation is mastered, the men are given service problems to solve. Emphasis is placed on analyzing troubles.

Lets Men Find Faults

For this purpose, Schwann will "gimmick" up the equipment or a special control board that contains a complete wiring layout. He will fault the equipment or control system to illustrate the more common problems the serviceman is liable to meet. Then he lets the men find the trouble themselves.

"I love to throw curves at them," he grinned.

When the trainees complete their week at the school, Schwann feels that they will be capable of making a good installation and know what to look for when called upon for service.

"We not only teach them what to do, we teach them what not to do," Schwann commented.

Beltz pointed out that the "aim of the school is to get a good caliber of service work in the field.

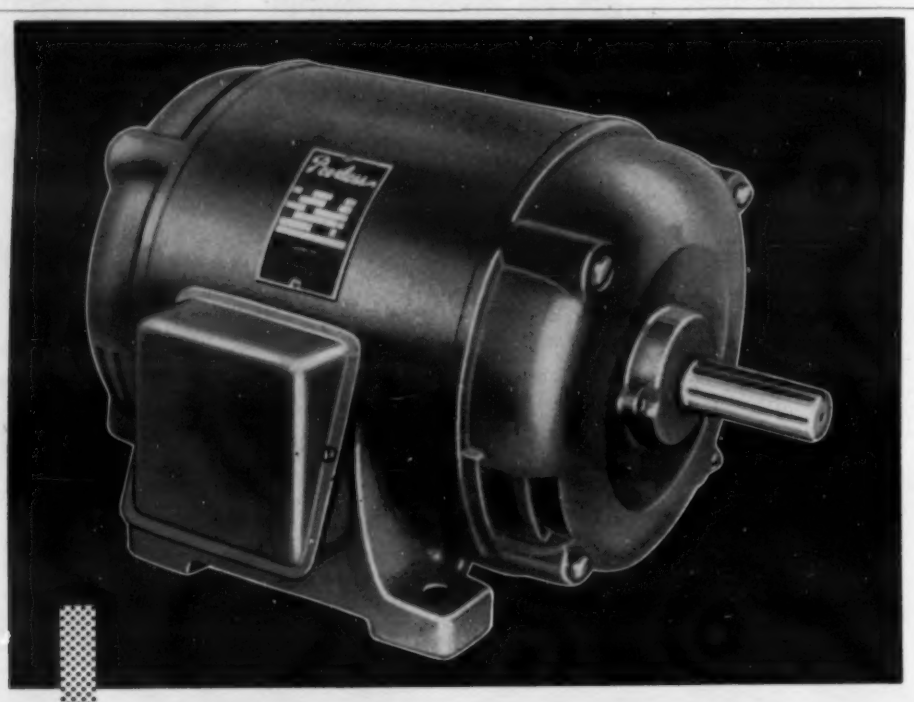
"We know these men are going to service our equipment even though they do not buy from us. We want to make sure they are at least familiar with it and know what to do with it."

For that, he indicated, Star Steel and the Burton Co. are willing to spend several thousand dollars to put on this school. The school is expected to continue as long as it is needed, at least for a few more months, Beltz said.

N. O. Nelson Trustee Wins Time Extension

ST. LOUIS—Petition of Elliot H. Stein, trustee of N. O. Nelson Co., for a time extension to complete investigation of the "debtor's affairs," was granted by Roy W. Harper, U. S. district judge here.

Stein received an extended period of 90 days "from and after" Feb. 6 in which to deliver his report to the court.



Newest Accepted Design in Refrigeration Duty Motors

This trouble-free motor starts and runs refrigeration compressors under the most severe conditions. It has just three parts which wear because of motion or electrical contact — the bearings; contact points on the stationary part of the switch; and the centrifugal parts of the switch. Excellent design holds wear on these parts to a minimum. Servicing is practically eliminated. Motors are Underwriters' approved.

Write for Peerless Refrigeration Motor Bulletin. It shows recommended wire sizes, construction features and answers those questions asked most often by men who service and distribute refrigeration duty motors. It shows you how motor service and maintenance can be held to a minimum.

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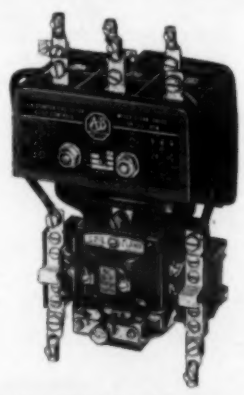
A-B Quality

SOLENOID STARTERS for TROUBLE-FREE Automatic Control



Allen-Bradley starters are built to give round-the-clock service . . . year after year . . . without trouble of any kind. Simplicity of design makes this performance possible . . . only ONE moving part . . . no bearings, pins, or hinges to corrode and stick . . . no jumpers to break. Double break, cadmium silver alloy contacts never need cleaning, filing, or dressing. Specify Allen-Bradley . . . the name that stands for "Quality" in motor controls.

Write for your copy of the Handy Catalog.

Allen-Bradley Co.
1313 S. First St., Milwaukee 4, Wis.
In Canada—
Allen-Bradley Canada Ltd., Galt, Ont.

BULLETIN 709

Eight sizes with ratings to 300 hp, 220 v; 600 hp, 440-550 v. Overload protection that remains reliable irrespective of time or operating conditions. In most NEMA enclosures.

The Sign of QUALITY MOTOR CONTROL

ALLEN-BRADLEY
SOLENOID MOTOR CONTROL
QUALITY

For more information about products advertised on this page use Information Center, page 54.

Dunham-Bush Catalogs Steam Heating Units

——KEY NO. S-240——

WEST HARTFORD, Conn.—Dunham-Bush, Inc., manufacturer of air conditioning, refrigeration, and heating products, has released a new eight-page catalog (Bulletin No. 1501A) illustrating its complete line of steam heating specialties.

These products include radiator valves, float and thermostatic radiator traps, inverted bucket traps, strainers, air eliminator air checks, and gauges for steam, oil, gas, and water. Specification data covers dimensions, weights, sizes, and capacities.

Frick Illustrates 'Shell-Ice' Makers

——KEY NO. S-241——

WAYNESBORO, Pa.—Frick Co. here has issued an eight-page bulletin covering its "Shell-Ice" makers.

Bulletin 54-C is illustrated and fully describes the Shell-Ice maker, giving recommendations as to use. Sizes are given on the back cover with model numbers.

Worthington Covers Hermetic Compressors

——KEY NO. S-242——

HARRISON, N. J.—Field serviceable hermetic compressors now available for use in packaged chillers, packaged air conditioners, and commercial refrigeration units are the subject of a new bulletin recently offered by Worthington Corp.

Complete information about features, component parts, specifications, and dimensions on the 2 to 7½-hp. compressors is contained in the publication listed as C-1100-B93 P.

Plastic Extrusion 'Design Guide' Issued

——KEY NO. S-243——

CHICAGO — Jarrow Products, Inc. recently issued a "Design Guide" for vinyl and rigid plastic extrusions.

This literature shows the wide range of shapes available for extrusion, representing vinyl plastic applications in air conditioning and refrigeration and other fields.

Catalog PL-400 shows the "virtually limitless" uses to which shapes can be employed, the firm said.

Bulletin Discusses Roof Ventilator

——KEY NO. S-244——

WARREN, Ohio—Peerless Electric Co. recently produced a new bulletin, SDA-220, covering the firm's new centrifugal roof ventilator.

Integral parts of the unit are discussed with several pages devoted entirely to ratings and performance data. Back page explains other Peerless fan and blower products and lists representatives of the firm.

Standard, Non-Freeze Steam Coils Outlined

——KEY NO. S-245——

PITTSBURGH — Halstead & Mitchell's bulletin S-200, recently issued, describes the company's new line of standard and non-freeze steam coils, using its "Turbo-Flo" finned surface for extra high heat transfer.

Detailing construction of the coils, including tubing, casings, headers, refrigerant distribution, return bends, and valves, the catalog also outlines test and dehydration as well as means of specifying special coils.

Tables are devoted to dimensional data, male pipe connections, and air friction through coils. A section is devoted to methods of calculating proper sizes of steam coils. The bulletin also presents tables showing final temperature and condensation rates as well as constants for temperature rise.

Offer Specifications On Condensing Units

——KEY NO. S-246——

UTICA, N. Y.—A new bulletin (data sheet #493) which includes specifications and capacities for open-type refrigeration and air conditioning condensing units from ¼ through 100 hp. is offered by Brunner Mfg. Co. here.

In addition, specifications are included for compressor units for use with evaporative condensers, ⅛-100 hp. Simple compressors in single and two stage for use with horsepower up to 100 are also included.

Data and specifications are given for condensing units with "Freon-12" or "Freon-22" refrigerants in all horsepower models. Units are air cooled, water cooled, or combination air and water.

Anaconda Releases Fittings Catalog

——KEY NO. S-247——

WATERBURY, Conn.—A new catalog of Anaconda fittings was recently released by the American Brass Co. here.

The 118-page manual, C-12RS, provides easy reference to sizes, weights, and roughing-in dimensions of a wide range of copper tube fittings.

Penn Describes Cooling, Refrigeration Controls

——KEY NO. S-248——

GOSHEN, Ind.—A new, 1957 condensed catalog on refrigeration and air conditioning controls, Bulletin 1487-AE, has been prepared by Penn Controls, Inc.

The 24-page, three-color catalog includes a complete listing of standard Penn cooling controls for pressure and temperature applications in standard, heavy duty and extra heavy duty constructions; oil protection controls; water regulating valves; defrost controls; cooling tower controls; solenoid valves; humidistats, and cooling and heating-cooling thermostats.

Condensed descriptions of the controls cataloged include electrical ratings, ranges, differentials, sensing bulb sizes, capillary lengths, special features, applications, shipping weights, and list prices.

Drayer-Hanson Booklet Covers Multi-Zone Line

——KEY NO. S-249——

LOS ANGELES — Recently issued by Drayer-Hanson was a 12-page booklet of engineering data on multi-zone air conditioning equipment.

Designated D-H "Flexazone" Engineering Manual, the publication is descriptive of the firm's nine-model line of single unit equipment which can simultaneously heat one area while cooling another.

Nominal rating table and selection and air friction data are included. A breakdown of coil capacities and full specification sheet are shown. A selection box is given wherein an air conditioning equipment schedule of design temperature conditions may be filled in.

A product feature—the option of adding or changing zones in the field—is graphically illustrated with a step-by-step outline and several hypothetical problems which have been worked out. There are schedules on mounting channels, whole dimensions, and assembly.

Manual Covers Control Application, Operation

——KEY NO. S-2410——

SCHENECTADY, N. Y.—A 32-page illustrated publication, "General Purpose Control Operation and Application Manual," explains what each such General Electric Co. product is, how it works, and where it can be applied.

GEA-6372 two-color bulletin describes manual, magnetic, and reduced-voltage starters; pushbuttons; relays; limit switches; solenoids; pressure and vacuum, float, and plugging and anti-plugging switches.

Bid Lower with WESTINGHOUSE

Packaged WATER CHILLERS

They are COST SAVERS for you and your customers!
SPACE SAVERS!
These new packaged Westinghouse water chillers occupy one-third less space than most competitive models. Internal finned construction of the chiller has five times the heat transfer quality of prime tubing.
TROUBLE SAVERS!
Full line of Package Chillers with these Selling Features:
Westinghouse hermetic compressors from 2 to 120 tons.
Westinghouse non-ferrous chiller construction. ASME approved.
Westinghouse condenser. ASME approved.
LABOR SAVERS!
Shipped completely assembled. Packaged for easy installation. Needs no costly electrical wiring or refrigerant piping on the job.

• **COMPLETELY FACTORY ASSEMBLED**—with all piping, control wiring, operating and safety controls, ready for use. Completely tested for capacity and performance. Components selected for your specific application. Built to your specifications. Carries standard Westinghouse warranty.

• **COMPLETE AUTOMATIC CONTROLS!** Liquid line solenoid valves, high-low pressure cutout, oil pressure protector, low water temperature cutout, discharge temperature cutout, water pressure safety switch, time delay relay, return water thermostat, crankcase heater, and control circuit transformer for voltage reduction to 110 volt line circuit.

• **SILENT, SMOOTH, STRONG, COMPACT!** Westinghouse compressor is isolated from frame. Flexible piping in suction and discharge lines to absorb vibration. Strong steel frame may be ordered in two parts to pass through standard 6' door. Unit assembles vertically or horizontally to meet your requirements.

• **NON-FERROUS CHILLED WATER CIRCUITS!** Rust and corrosion resistant copper tubes and shell, brass tube sheets and baffles are cased in ice water insulation. Chillers are completely insulated and covered with a steel protective jacket.

• **OVER 1000 COMBINATIONS—2 TO 120 TON RANGE!** Now, a *single* factory assembled unit to meet *any* cooling need for process or comfort conditions. Two or more units easily combine to do *any* air conditioning or process job. May also be ordered without condensers, for use with separate air or water-cooled assemblies. Built to A.R.I. standards.

CALL THE MAN WITH ALL THE FACTS! You'll find your nearest Westinghouse Air Conditioning Office in the Yellow Pages, or write: WESTINGHOUSE ELECTRIC CORPORATION, AIR CONDITIONING DIVISION, STAUNTON, VIRGINIA. *Don't miss our booth at the International Heating & Air-Conditioning Exposition.*

YOU CAN BE SURE...IF IT'S Westinghouse

J-80532AA

Distributor To Install Units, Piping, Ductwork To Air Condition 4 Floors of New Rio Hospital

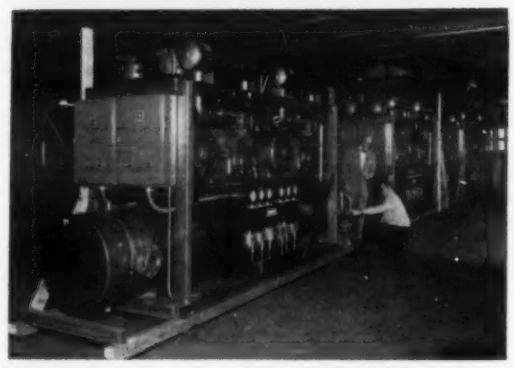
HARRISON, N. J.—The new Hospital Sul America being constructed at the base of Rio de Janeiro's majestic 2,272-ft. mountain peak, Corcovado, will be air conditioned by Worthington equipment, the manufacturer reports.

Rising 10 stories high, the hospital will be capable of accommodating 260 patients when completed in December 1957.

Worthington air conditioning and refrigeration equipment includes three packaged chillers driven by 40-hp. motors; three evaporative condensers; six air handling units; and 45 under-the-window type room cooling units. The equipment will air condition the 7th, 8th, 9th, and 10th floors where the operating room, maternity ward, and deluxe apartments are located.

Ceibrasil, distributor of Worthington air conditioning and refrigeration equipment in Brazil, will install the equipment, as well as piping and ductwork to facilitate installation of additional cooling equipment later on to air condition the entire structure.

The all-glass and concrete building will be laid out in a park-like setting in Rio's Jardin Botanico district, locality of the city's famed botanical gardens. It will overlook Lake Rodrigo de Freitas which flows into the sea.



READYING three 120-ton "Thermatrol" package water chillers for shipment from Schnacke plant to Thermair Industries, Inc., New York City for installation in White Plains building.

120-Ton Package Chillers To Condition 4-Story Bldg., 2 Penthouses Year-Round

EVANSVILLE, Ind. — Schnacke, Inc. here recently announced that an order for three 120-ton "Thermatrol" package water chillers has been completed and the units shipped to Thermair Industries, Inc., New York City, to be installed in a new combination office and store building of four stories with two-story penthouse at 55 Church St., White Plains, N. Y.

The engineering and design of the air conditioning of the building was handled by Frank J. D'Anna, associate of the Thermair company. He was formerly an engineer with Schnacke.

"The project in White Plains," according to Thermair officials, "was originally designed around a direct expansion air conditioning application which required duct and large air handling equipment. It was redesigned for a chilled water system and which will now provide heat with the same system. The system is so compact that two penthouse floors, originally planned for air handling equipment, etc., can now be used for office space.

"Each of the three water chiller units will cool 248 g.p.m. from 59.6° F. to 48° F. with a total capacity of 120 tons of cooling per unit."

The units designed and engineered by Schnacke are 8 ft. high, 16 ft. in length, and 4½ ft. wide, weigh about 7½ tons each. They required about three weeks to manufacture after all required materials and components were obtained. The units are equipped with Schnacke compressors and Thermatrol capacity controls.

"The units consist of compressors and two 60-hp. motors each with one 120-ton two-circuit water chiller, also called evaporator, along with two water-cooled condensers, heat exchangers, etc.," it was explained. "Each unit has two complete refrigerant circuits or systems individually controlled.

"These units are complete systems with all controls and full charge of refrigerant.

Use of Refrigerant-12 Insulating Refrigerator Explained to ASRE Local

PHILADELPHIA—"A highly technical, but interesting" paper covering use of "Freon-12" as refrigerator insulation was presented to a recent meeting of the local American Society of Refrigerating Engineers section.

Walter H. Emerson of Great Britain, now an engineer in the Advance Research Product Div., Philco Corp., explained that "a 10-cu. ft. refrigerator also contains approximately 10-cu. ft. of solid or fiber glass insulation." He expressed his belief in future possibilities of having a 15-cu. ft. refrigerator "fit in the space now required for a 10-cu. ft. unit if insulation is reduced 50% in bulk."

His research and formulas, he claimed, prove that a plastic envelope made of 70-mill du Pont "Mylar" containing a 1-in. batt of fiber glass and filled with "F-12," after drawing a deep vacuum, would be equivalent to the existing 3-3½-in. insulations now being used.

However, he mentioned one precaution concerning pressures. "Whereas 3 lbs. pressure in the liner would distort the refrigerator cabinet within 15 years, 0.8 lbs. atmospheric pressure would not."

Emerson is returning to England to pursue his career there.

Century Electric Founder, Reuben Russell, Dies at 81

ST. LOUIS—Funeral services were held recently for Reuben J. Russell, 81, senior vice president and a founder of Century Electric Co., manufacturer of electric motors, generators, and variable speed controls.

Russell also was one of the founders in 1908 of the National Electrical Mfrs. Association, serving as president in 1923 and at various times as a member of the board of governors. He served as vice president of the Engineers Club of St. Louis.

Forms Cooling Firm

MADISON, Wis. — Comfort Heating & Air Conditioning, Inc. has been formed here with an authorized capital stock of 100 shares of common of no par value. Incorporation papers were signed by Ted A. Sweet, 3600 E. Washington Ave., Madison.

Dealer Adds Autos

GRAND PRAIRIE, Texas—O. G. Robinson, local air conditioning dealer, has opened an automobile agency here. It will handle Studebaker and Packard.

With the Self-Contained Remotaire, cooling is supplied by an air-cooled refrigeration unit (on the left) and heat is supplied by a steam or hot water coil which is easily connected to a central heating system.

KLIXON

THERMOSTATS

help assure dependability in new American-Standard Self-Contained Remotaire

The Self-Contained Remotaire, a unique American-Standard year 'round air conditioning unit, uses Klixon Thermostats as an important part of its versatile control system.

In designing the Self-Contained Remotaire, American-Standard engineers specified a Klixon Thermostat to keep the circulating fans in the heating side of the unit from operating until there is steam in the coil.

You, too, can help build and maintain product performance reputation for your air conditioning unit, freezer cabinets, refrigerators, beverage coolers, etc., by specifying and using Klixon Thermostat Controls.

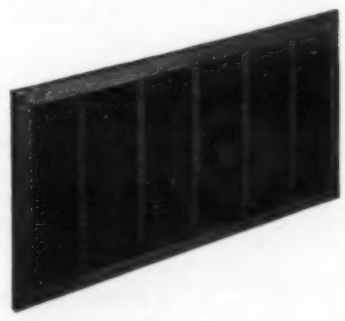
KLIXON DOME MOUNTED PROTECTORS help hermetic compressors deliver maximum refrigeration day after day by keeping the motor running at the greatest capacity possible under the load conditions involved — without danger of burnout.

METALS & CONTROLS CORPORATION
Spencer Thermostat Division
2402 Forest Street, Attleboro, Mass.
KLIXON®

AIR CONDITIONING WITHOUT DACOR?

Never!

You'll say the same . . . when you see how DACOR boosts your sales! DACOR utilizes a fast-action odor remover, activated charcoal, to give your air conditioners and forced-air furnaces an important competitive advantage—air purification. DACOR filters do what consumers want . . . keep home air healthfully clean, dust and odor free.



Millions of tiny activated charcoal particles comb the air stream, pick up every kind of impurity . . . odors, smog, dust, pollen, even hard-to-remove tobacco smoke and smell. DACOR turns ordinary window coolers into true air conditioners.

See Dacor demonstrated at the Heating & Air Conditioning Exposition, Booth 1046.

The BARNEBEY-CHENEY Company
Columbus 19, Ohio

Please send me full information on DACOR. 225
My name _____
Address _____
Firm _____
City _____ State _____
I am: ☐ dealer ☐ mfg. rep. ☐ contractor ☐ equipt. mfg.

For more information about products advertised on this page use Information Center, page 54.

Fedders Offers 9 Through-the-Wall Units In 2 Sizes To Use Any Voltage

MASPETH, N. Y.—A new line of through-the-wall air conditioners for new construction and existing homes and offices was announced by Fedders-Quigan Corp.

Known as "Wall-Fit" models, nine new air conditioners are available in ¾, 1, and 1½-hp. capacity in two different sizes and for operation on every type of voltage and current.

NEW Fedders "Wall-Fit" models at 16¼ in. high have been dimensioned for simple installation.

'SHELL' MOUNTS ANY SIZE OR IN ANY WALL

"The new models come with a special 'shell' for mounting the air conditioner in any size or type of wall construction," it was pointed out. "Shells are available with a front-to-back dimension of 16 in. and, for thicker walls used in apartment structures and older office buildings, 19 in.

"Both sizes are made of heavy-gauge steel with lintel-like reinforcing members and a perforated mounting flange designed to prevent hairline plaster cracks on interior walls.

CAN ORDER SHELLS SEPARATELY

"The steel shells, which are available separately for delivery to the building site to meet construction schedules, have an outer louver plate which is removable from the inside of the building in the event of damage. Rain water is drained from the shell at a distance from the wall to prevent stains and damage due to moisture.

"Shells are delivered with a removable steel sealing plate which will keep out outside air until the chassis is installed. It also adds strength during construction, assuring smooth, easy installation of the chassis.

"The new Wall-Fit models have been dimensioned for simple installation. Only 16¼ in. high, they match standard and jumbo brick coursing and can fit under windows with either convectors or baseboard radiation. Controls are located at the top of the unit and can be operated comfortably from a standing position even in normal under-the-window installation."

Suggested retail prices are:

Model	Description	List Price
79AW2	¾-hp. Deluxe Supreme, 7½ Amp.	$314.95
711AW2	1-hp. Deluxe Supreme, 115 Volts	359.95
711AW3	1 hp., 230 Volts	354.95
711AW5	1 hp., 208 Volts	354.95
711BW2	1-hp. Custom Supreme, 115 Volts	399.95
711BW3	1 hp., 230 Volts	379.95
711BW5	1 hp., 208 Volts	379.95
716BW3	1½ hp., 230 Volts	449.95
716BW5	1½ hp., 208 Volts	449.95

To Condition College Bldg.

DETROIT — Construction of an air conditioned $1.5 million college of nursing building at Wayne State university will begin in September, Dean Arthur J. Neef, vice president, announced recently.

To be faced with a modernistic curtain wall of porcelain and glass, the four-story structure will house classrooms, offices, lounges, and a large demonstration room. Heat and air conditioning will be provided through a system of radiant piping concealed above acoustical metal ceiling tile.

AAF Reports Net Profit of $2,386,322 In 'Greatest Year'

LOUISVILLE, Ky. — Steady advances in all phases of its operations — orders, shipments, earnings—during 1956 resulted in American Air Filter Co.'s greatest business year, according to W. G. Frank, president, who recently released the annual report to the company's stockholders.

The report shows the net profit was $2,386,322, as compared with $1,734,296 for the previous period. Net profit equaled $5.61 per share of common stock, up $1.54 from the previous year.

Net shipments were $36,880,288 as compared with $30,270,702 in 1955, an improvement of $6,609,586.

New orders booked totaled $40,380,000 for the fiscal year which ended Oct. 31, 1956, as compared with $30,570,000 for the previous year.

Unfilled orders also were reported favorably. A total of $14,800,000 in orders remained to be filled at the close of fiscal 1956, which represented a $3,500,000 improvement over the year before.

Firm Chartered

COLUMBIA, S. C. — York Heating & Cooling, Inc. here has obtained a charter from the Secretary of State to conduct a heating-cooling business.

Conditioned Trailers To House Radio Satellite Tracking Equipment

BALTIMORE — Sensitive radio equipment which will be used to track the first man-made moon will be housed in air conditioned mobile trailers and receive signals picked up from eight antennas at each of the receiving stations.

The equipment is now in production, the Navy Dept. and Bendix Aviation Corp. jointly announced.

The complete "Minitrack" radio receiving system being built by Bendix will occupy six racks, each about the size of a filing cabinet, it was explained.

By measuring the minute difference in time required for the satellite's signal traveling at the speed of light to reach each of several antennas, separated by a few feet to 500 ft., the position of the 20-in. sphere whirling 200 to 1,500 miles above the earth will be pinpointed.

Original Minitrack ultrasensitive radio system, along with 11 other receivers under construction by the radio division of Bendix here will be strategically placed up and down the American continents to tune in radio beams from the man-made moon as it orbits in space, it was stated.

Satellites will be used to collect data by scientific measurements in interplanetary space. Data will be obtained by radio signals coming from the instrument-packed sphere and also by optical observation of the tiny moon as it orbits at 18,000 m.p.h., circling the earth once every 90 minutes.

Radio equipment can listen to radio "noise" originating on the sun, it was noted, not ordinary sun-spot "static," and detect the presence of stars that emit no visible energy.

This earth satellite will provide scientists with information on the outer limits of the atmosphere, the characteristics of interplanetary space, solar radiation, and its effects on weather and communications, cosmic rays, and density of dust and micrometeorites in outer space.

No. 3 in a series on refrigeration

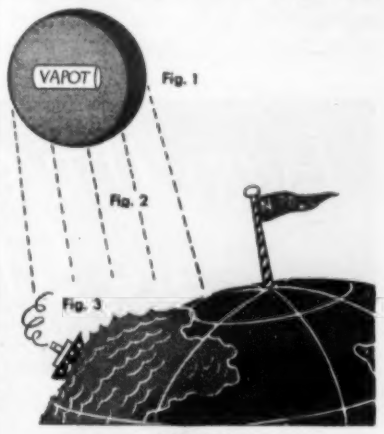


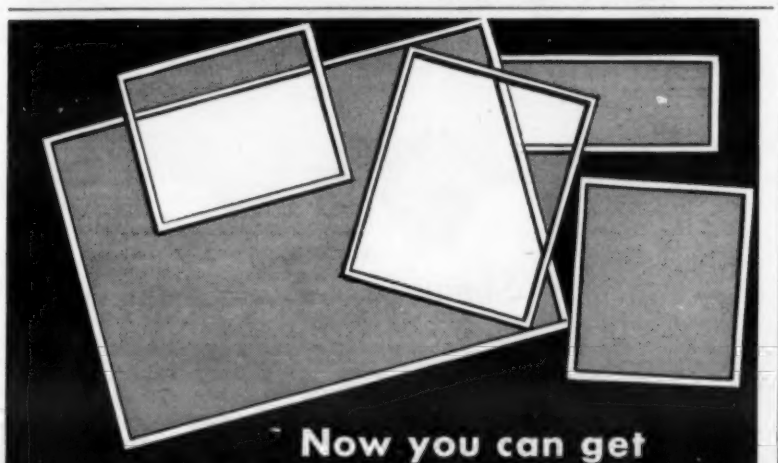
DIAGRAM A.

The moon is smaller than the earth, bigger than a cantaloupe. Although we have nothing but admiration for the cantaloupe we think the moon operates on a more ingenious system and renders unto mankind a more valuable service.

The moon (Fig. 1 in Diagram A, above) casts a reflected light which is pleasant to contemplate, especially at night, and is best viewed from a canoe. The moon, however, is more than decorative. What it does mainly is **pull** at water. When the moon is on, or hot, it pulls at the ocean with a sucking action (Fig. 2) causing the ocean to hump up in a lump in the middle. When the moon goes off, or cold, the hump of water (Fig. 3) flattens out as the moon lets go and this is what causes the tides—and makes possible the clam industry.

The moon is able to perform its useful function efficiently because it is equipped with a small working part the name of which is right on the tip of our tongue and no doubt it is also on the tip of the tongue of Geo. F. Taubeneck too . . . but anyway the moon's important working part corresponds to **VAPOT,** a small working part used in refrigeration installations and **VAPOT** is made and supplied exclusively by us. It enables refrigeration installations to function better. **VAPOT** defrosts. There are other defrost systems. **VAPOT** defrosts suddenly. Frost and ice disappear when **VAPOT** clicks into action. No detrimental temperature rise.

If you design or build or buy or use commercial-industrial refrigeration you should have the technical data on **VAPOT.** We'll mail it if you'll raise your hand. **VAPOT** is one of many specialties made by us and used in refrigeration and air conditioning.



Now you can get
DUST-magnet®
electrostatic life-time air filters
for all sizes of air conditioning
and refrigeration equipment

Dust-magnet air filters last for the life of the equipment, actually pull dirt, dust and pollen right out of the air stream, wash clean in a jiffy. U. L. approved. Ask your jobber or write for details to . . .

STODDARD INDUSTRIES, INC.
1545 Kingsbury Street, Chicago 22, Illinois

No Gloves! No Neutralizer!
Safe! Effective!
SOLVEX

For better cleaning, maintenance and protection of air conditioning and refrigeration systems, specify Solvex products. These time-proved materials are safe to use . . . will not harm user or equipment . . . actually help preserve metal parts. Effective, yet you need no gloves, no neutralizer. With Solvex, most systems can be cleaned while in operation. Specify Solvex, and get the finest quality — for safe, effective cleaning and maintenance.

Meet us at Booth 313
13th International Heating and Air Conditioning Exposition Chicago

ULTRA SOLVEX
Recommended for the hard jobs. Grains in 10, 25, 50 and 100-lb. containers.

SOLVEX
An economical cleaner for average jobs. Grains in 25, 50, and 100-lbs. and handy tablets.

CSCO MAINTENANCE FORMULA
Seals out scale and corrosion. Grains in 25, 50 and 100-lb. containers, and handy tablets in 10-lb. packs.

CSCO ICE MACHINE CLEANER
Cleans Ice Makers of all types . . . for clear, hard ice. Packaged in 8-oz. poly bags.

SPECIAL ALGAE SOLVEX
Kills algae, sanitizes, sterilizes, and deodorizes. Grains in 10, 25, 50 and 100 lbs. and handy tablets.

Ask Your Wholesaler or Write:

CHEMICAL SOLVENT CO.
3005 N. 16th Street P. O. Box 487 Birmingham, Ala.

RECOLD
SINCE 1932
REFRIGERATION ENGINEERING, INC.
7250 E. Slauson Ave., Los Angeles 22, Calif.
Phone: RAymond 3-3281

Utility Tests Heat Pump Engineering, Economic, Operating Factors

Finds Average Performance Coefficient About 3-to-1 In Ground-to-Ground Unit

Says the author, A. D. Spillman, Philadelphia Electric Co., with reference to the accompanying article:

"This outlines some of our experiences with heat pump installations made in our territory, with particular reference to commercial applications. We are continuing to make investigations and studies of various types of heat pumps from the standpoint of improvements in performance and economy of operation."

By A. D. Spillman, Assistant Manager, Sales Application Dept., Philadelphia Electric Co.

In 1947 the Philadelphia Electric Co., in cooperation with manufacturers of air conditioning equipment, planned to obtain first hand information about the engineering, economic, and operating factors of the heat pump and thereby assist in its commercial development.

At that time the thinking was that use should be made of the earth as a heat source because it had a relatively constant year-round temperature. Water, while an excellent heat source, was considered as unsuitable because of its limited availability and the several economic factors which would add to the cost of operating such equipment.

Air was also considered as a heat source but both the development of equipment and the low air temperatures in our area during the winter season led to the deferment of any tests at that time.

HEAT PUMP installation in Ballinger Co.'s two-story office building has two 60-hp. compressors for the air-to-air system which includes a heat exchanger, and necessary circulating pumps and auxiliaries.

Test Unit In Homes Of 2 Employes

Plans for tests on two installations in houses of two of our employes were completed and a year's data obtained. These installations, using the ground as a heat source, were supplemented by resistance type heaters to take care of peak heating requirements. A maze of piping was laid in trenches 5 ft. deep.

Over the two-year test period the results indicated an average coefficient of performance of 2.5 to 2.7. It was definitely concluded that to obtain maximum desirability as a utility load builder under advantageous competitive conditions with other fuels, the heating capacity of the heat pump installation should be limited to a value approaching the cooling capacity requirements.

As far as any supplemental heat is concerned, such as resistance heaters, these would have to be used in a manner not to create excessive demands. As an alternate, the use of any suitable heat storage method with the heat pump would have the effect of increasing the load factor and limiting the demand —a result economically advantageous to both the customer and the utility.

The heat pump's great advantage lies in its theoretical ability to develop seven times the amount of heat put into it in the form of electrical energy.

Actual on site performance of machines indicates that the coefficient of performance is in the neighborhood of three to one. The closer we can approach the theoretical value the more competitive will the system be with present-day conventional heating and cooling systems.

Which External Medium To Use?

With ground, water, and air as external media and with water or air as the two internal media for space conditioning we have a total of six possible combinations. The question as to which external medium to use depends on several factors.

For instance, efforts to use the ground as the external source have met with disfavor due to the large ground area and excavation necessary.

If water is to be used as the external source it must be readily available at low cost and, secondly, provisions must be made to adequately dispose of the condensing water in sewers or streams.

Problems In the Use of Air Medium

At the present time, air seems to be favored most as the external source. However, the problem, particularly insofar as our territory is concerned, is that as climatic temperatures go down, not only are heating requirements increased but the heat available is decreased. These constitute two factors which necessitate the installation of a disproportionate increase in the machine capacity to adequately take care of the heating cycle requirements.

To be more specific, the capacity required for cooling in our territory might be sufficient for heating in the months of October, November, April, and May, or when the temperature did not drop below 20° F. However, to provide for heating at minimum winter temperatures, the capacity would have to be doubled, either by increasing the size, or, as in the case of some packaged heat pump units, by supplementing it with resistance heaters which automatically cut in or out as required. More recently the use of compound compression machines offer good potentialities in carrying the load without the need of resistance heaters.

We have in our territory a number of complete heat pump installations in commercial buildings in Levittown, the first of these being completed in 1951. These are of the water-to-water

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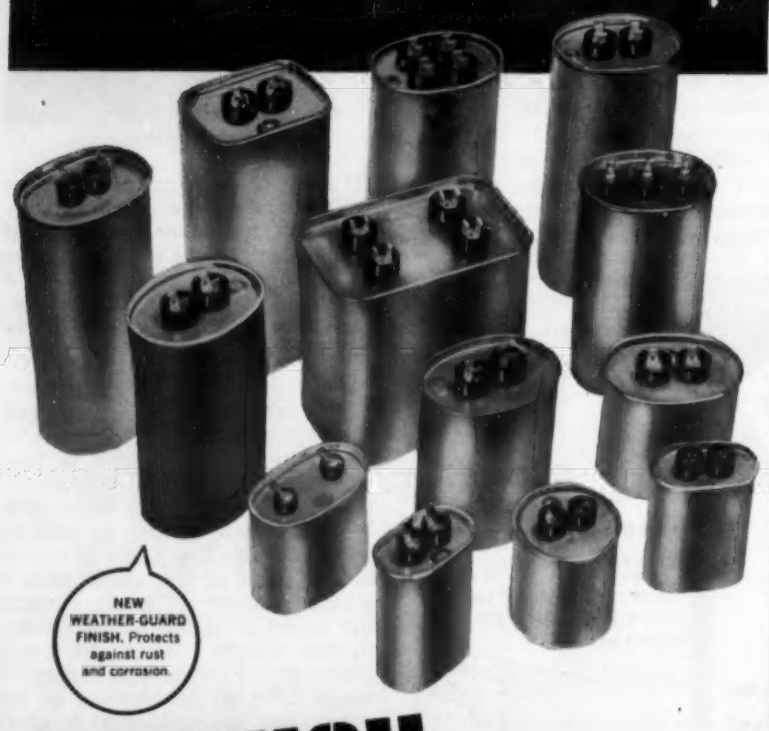

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Utility Tests Heat Pump--

(Concluded from preceding page)

type and of the water-to-air type. Well water at temperatures of about 57° F. was found available at 40 to 50-ft. depths in ample quantities for use as condensing water .

In order to make it available in the business district, mains for its distribution were installed and service pipes were run into those buildings using this type of heat pump. The used water was discharged into storm sewers leading back into the Delaware River.

Determine Operating Conditions of Unit

In accordance with our Sales Dept.'s practice to follow through on new applications that represented good potential load building possibilities, we arranged to install meters to help us determine the operating conditions of the heat pump installed in the Levittown Administration building.

In addition to two 60-hp. compressors, there is a ¼-hp. air compressor for pneumatic controls, a 7½-hp. circulating water pump, a 5-hp. supply fan and a 3-hp. supply fan. This installation proved successful and shortly thereafter 23 more were made in various stores in the Levittown Shopping Center.

24 Installations Offer 432 Tons Capacity

The 24 installations range from 5 tons to 100 tons and represent a total of 432 tons of heat pump capacity. The larger installations are of the water-to-water type, whereas most of the smaller systems are water-to-air.

The most recent commercial heat pump installation in our territory is in the new office building of The Ballinger Co., architects and engineers, 1625 Race St. It was made only after a careful analysis of the installation and operating costs by the members of this firm. Their investigations also included an examination of the operating costs with fuel-fired equipment and conventional air conditioning versus the complete all-year-round heat pump operation.

The Ballinger Co.'s two-story office building, of approximately 50 by 140 ft., seemed particularly suited for a year-round heat pump installation.

The building sidewalls are, for the most part, a common party wall, so that the heat gain or loss from these areas is relatively small. The front of the building is mostly glass and the rear wall has a relatively high percentage glass area. Insulation was installed both under the roof of the second floor and under the floor of the first floor to insure the best insulating qualities in the areas to be conditioned.

Figure Two 60-Hp. Compressors for Heating

Calculations indicated that with this type of construction two 60-hp. compressors could adequately take care of the heating, whereas normal cooling could be handled by the operation of one machine. It was established that to extract heat during the heating cycle from outside air at 0° F., it would be necessary that the refrigerant in the evaporator of the heat pump be at a temperature of about -30° F. for rapid heat transfer.

Similarly, on the condensing side of the heat pump, the temperature of the refrigerant must be at about 120° F. in order to provide 115° F. water to be circulated as the heating medium throughout the building.

To obtain these temperature ranges the compression ratio of the heat pump had to be high and this could be accomplished through the use of two machines connected in series. Individual machine compression ratios are thereby reduced and the output increased.

The Ballinger Co. installation, utilizing air as the heat source, circulates water through a closed system to air-handling units at various locations.

Room air is drawn into these air-handling units, mixed with a certain percentage of outside air, and after filtering is circulated into the room space through suitable ductwork.

In addition to the two 60-hp. high-speed multi-stage compressors, the system includes a heat exchanger, and the necessary circulating pumps and auxiliaries. It also has a spray water tank, pumps, and heaters for defrosting the outdoor coils in the winter time. In the summer this outdoor unit operates as an evaporative condenser.

In the heating season the system is controlled automatically by day and night thermostats. The change-over from heating to cooling is accomplished simply by the use of a single switch.

During the heating cycle, because of the greater differential between indoor and outdoor temperature, the operation of both compressors may often be required, whereas, in the cooling cycle the use of one compressor is adequate. As the refrigerant gas is compressed its usable heat is taken up in the condensing coil in addition to the heat gained from the outside air.

Install Test Metering Units

As the Ballinger installation was the first of its kind in our territory, we arranged, with the cooperation of this firm, to install test metering equipment. This includes graphic watt meters and temperature recorders to provide us with measurements over a full 12 months' period.

The meters are now installed and we hope, with the aid of this test data, to determine the effect of the lighting load, which is about 75 kw., in contributing toward the heating cycle and, of course, in acting in reverse, for the cooling cycle.

The effect of this lighting load entered into the original calculations in sizing the heat pump for the installation. Likewise, this was taken into account in setting up the comparative annual operating costs which showed a slight saving for the heat pump when compared with a conventional heating plant with separate air conditioning.

Wolverine Opens Boston Mill Depot

NEW YORK CITY—A new mill depot has been opened in Boston to serve the customers of Wolverine Tube, Div. of Calumet & Hecla, Inc., announced F. F. Moore, assistant eastern district sales manager.

The depot will stock Wolverine copper water tube, refrigeration tube, and automotive tube. Establishment of this service facility will speed shipping service to Wolverine customers in the New England states.

Charles E. Rinaman will coordinate the new mill depot operation from Providence.

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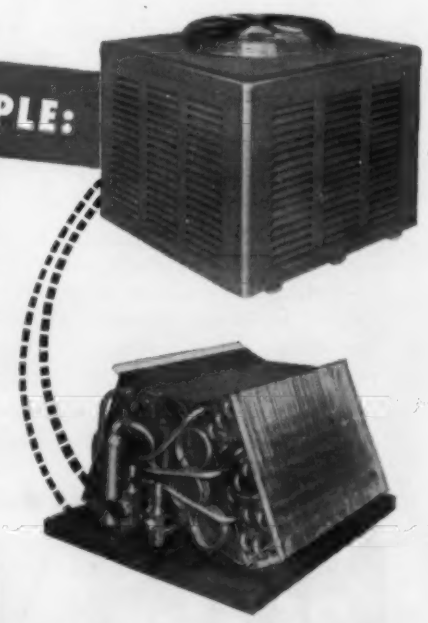
EXAMPLE: the Peerless "Clima-Pump," a great contribution to a whole new 20th century era of heating and cooling. One all-electric unit does both, cooling in summer and heating in winter without fuel, flues or fuel residues.



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Advice on Cleaning Cooling Towers, Ice Makers

Chemist Recommends Against Using Bleed-Off on Cooling Towers, But Should Drain, Flush Every Month; Don't Place Downwind from Bakery, Smokestack; Clean Ice Makers Twice-a-Month

KANSAS CITY, Mo.—Cooling towers should be drained and flushed once a month, whether water treatment is used or not, Olivia P. Burkey, general manager of Chemical Solvent Co., recommends.

From the health standpoint alone, ice makers should be cleaned at least once every two weeks, she advises, and in most areas, once a week.

Mrs. Burkey, wife of Noel A. Burkey, Jr., president of the company, and a chemist in her own right, offered these and other suggestions to servicemen at the annual convention of the Refrigeration Service Engineers Society here.

OLIVIA P. BURKEY is the first woman to give a technical talk before the national convention of the Refrigeration Service Engineers Society.

She recommended that no bleed-off be used on cooling towers.

"If the customer will drain and flush his sump once a month, he will have no more problems than he would have with a bleed-off," she asserted.

Use of a bleed-off requires an increase of make-up water and the resultant wasting and dilution of the preventive treatment, she explained.

"As dirt settles out in water when a system is not in operation, the low part of a system—normally the condenser—should be drained prior to turning on the system each morning until the water starts to run clear," she suggested. "This will reduce the problem of silt blocking the lower tubes of a horizontal condenser."

She emphasized to the service engineers that water itself is not their problem. But the impurities in water are. She pointed out that water, because of its solvent nature, picks up gases and organic and inorganic matter wherever and whenever they come in contact—in the ground or in the air.

Generally speaking, below ground water will add minerals and some gases, while above ground water will add gases and some minerals.

'Wrong' To Take Water Sample at Supply Source

Therefore, Mrs. Burkey noted, it is fallacious to take a sample of water at the source of supply for analysis to determine the type and amount of preventive treatment required.

The sample will give a partial picture of the problem and scale hardness, but the complete picture would better be given by analysis of the scale encountered.

Because water does gather impurities from the air, cooling towers should not be placed, if it can possibly be avoided, downwind from a bakery or a smokestack, or overlooking a dusty alley or railroad track. Towers should be placed away from sources of highly reflected neat, on the shady side of buildings wherever possible.

Towers should not be placed downwind from a bakery, she explained, because exhaust air from the bakery contains yeast. This will be washed out of the air by the cooling tower water and will foul up the system.

Not only does heat reduce the efficiency of the tower, but it encourages the growth of algae, she noted. It is untrue that algae will not grow at temperatures below 60° F. They will. Algae have been found growing in systems operating at 40° F., she said.

Counsels Against Putting Ice Makers In Kitchens

For much the same reasons, Mrs. Burkey counselled against installing ice makers in kitchens.

"In the kitchen, they come in contact with too much heat to perform at design capacities, and the water will pick up odors and grease in the air," she said.

Ice from a dirty machine is slushy, melts rapidly, and produces little cooling. Therefore, ice machines should be kept clean and the freezing point set low enough to produce hard, clear cubes.

Using vinegar or lemon juice to clean the machine is not recommended, she added. Though the surfaces may appear clean, tastes can be left in the machine.

Repeated use of vinegar, she noted, will encourage growths of algae and other bacterial

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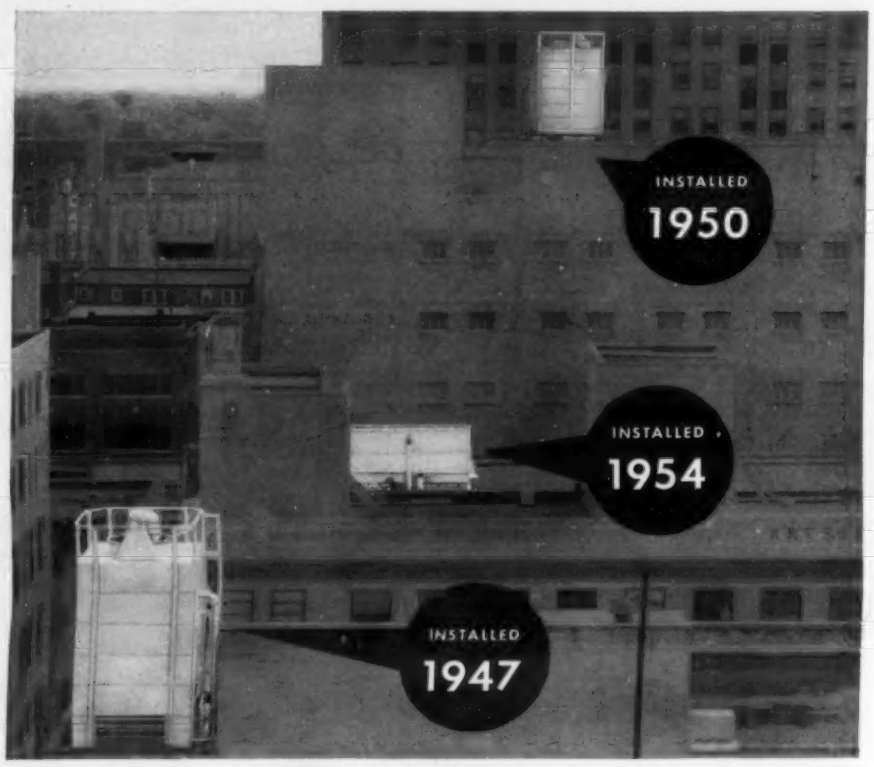

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Send for complete data

Write direct to the address below for Bulletins 477 and 333 describing 2-K or 3-B Series towers. Binks engineers will gladly study your needs and help you select the right tower from a complete line of mechanical and natural draft units.

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Developed for refrigeration equipment. Takes up to three, 15′, general purpose Thermistor tipped leads. With one lead and manual.... $33.95
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Cleaning Towers, Ice Makers--

(Concluded from preceding page)

slime throughout the system. When this happens, there is a hard problem to overcome.

The best ice machine cleaner is not a liquid but a chemical packaged in dry powder or fine granular forms, she indicated.

Preventive maintenance of cooling towers is still considered by some equipment owners as an expense rather than a saving. Mrs. Burkey suggested that these owners are overlooking the fact that a ⅛ in. build-up of scale on a coil will decrease its efficiency by 25%. And if this is a hard silicate scale, the efficiency drop is even greater.

Clean Towers When They Need It

Cooling towers, she said, should be cleaned whenever they need it, rather than relying on a fixed periodic cleaning such as at the beginning and end of the season.

"The specimen, not the book, is the true authority on when a tower needs cleaning," she declared. "When fouling occurs, clean the system."

The method of cleaning should be the one that is most effective and the most economical to use. "But that doesn't necessarily mean the cheapest cleaner," she added.

Consideration should be given to safety in handling the cleaner, its corrosiveness to the metal to be cleaned, its ease in handling and application, and whether it will evaporate, releasing dangerous fumes.

"Since the idea is to clean and also protect the metal surfaces, it is our opinion that the proper cleaner should disintegrate scale by beaking down the binder in the scale and thus reduce it to a harmless sludge which can be washed out of the system," she said.

Mrs. Burkey admitted that Chemical Solvent Co.'s cleaning agents will attack galvanizing to a degree.

"At the same time," she asserted, "we have incorporated materials into our formulae which, after cleaning, place a very thin copper coating on exposed surfaces.

"This coating is thick enough to protect the surfaces which were bared by loss of galvanizing, but is thin enough to prevent any decrease in heat exchange efficiency."

Warm Water In Sump Cuts Cleaning Time

In a question and answer period, Mrs. Burkey was asked whether there is any benefit to be gained by running the compressor as well as the circulating pump during cleaning. Does the heat of compression add anything to the cleaning?

She said it does because warm water in the sump will cut cleaning time. With an evaporative condenser, she added, it is frequently helpful to turn off the blower fan, thereby increasing the temperature even higher. A temperature a little higher than lukewarm—100 to 120° F.—is sufficiently high.

One serviceman said he found that the circulating pump would stick during cleaning and wanted to know what to do about it.

Mrs. Burkey suggested that either the flaked scale was too big to pass through the pump or else the pump was not designed for this work. She said the pump should have a bronze housing and neoprene impeller and the motor should be equipped with a capacitor.

Salty Water Problem

A Dallas serviceman stated that Dallas was having a problem with salty water that plays havoc with copper tubing. He asked if Chemical Solvent Co. had any product to combat this problem.

Mrs. Burkey said she did. It is a maintenance formula in tablet or dry granule form that will coat the tubing with a thin membranous, light film. It will eliminate or keep in suspension the salt and other impurities so that they will flow through the system without damaging the copper.

She said that experience has shown that proper application of the maintenance formula will keep a system clean for an entire season.

Acme Electric Expands Allegany Facilities

CUBA, N. Y.—Continual improvement in the Acme Electric Corp.'s sales of transformers and the growth in its business of regulated power supply units for electronic computors has necessitated expansion of facilities at Allegany, N. Y., report J. A. Comstock, chairman of the board, and W. E. Wilson, president.

A new building will be erected adjacent to the present Allegany plant and will provide an additional 23,500 sq. ft. of working space, plus receiving and shipping facilities. Cost of new building is about at $175,000.

American Potash Announces Changes In Eastern Territories

LOS ANGELES — The air conditioning and refrigeration department of American Potash & Chemical Corp. has made a revision of its eastern distribution territories, according to George A. Schnier, sales manager for the department.

As part of the readjustment, a new territory, the middle Atlantic, has been created to provide more efficient servicing of refrigeration customers, Schnier said. The new area includes Maryland, Delaware, Washington, D. C., and parts of New Jersey and Pennsylvania.

Bob J. Johnson, of Springfield, Pa., has been appointed territorial representative for AP&CC's refrigeration products including methyl chloride, sulfur dioxide, du Pont "Freon-11," "Freon-12," "Freon-22," "Freon-114," and the full line of refrigeration chemicals in AP&CC's disposable "Charg-A-Can" containers.

Johnson has been a manufacturer's representative in the general area for the past 10 years.

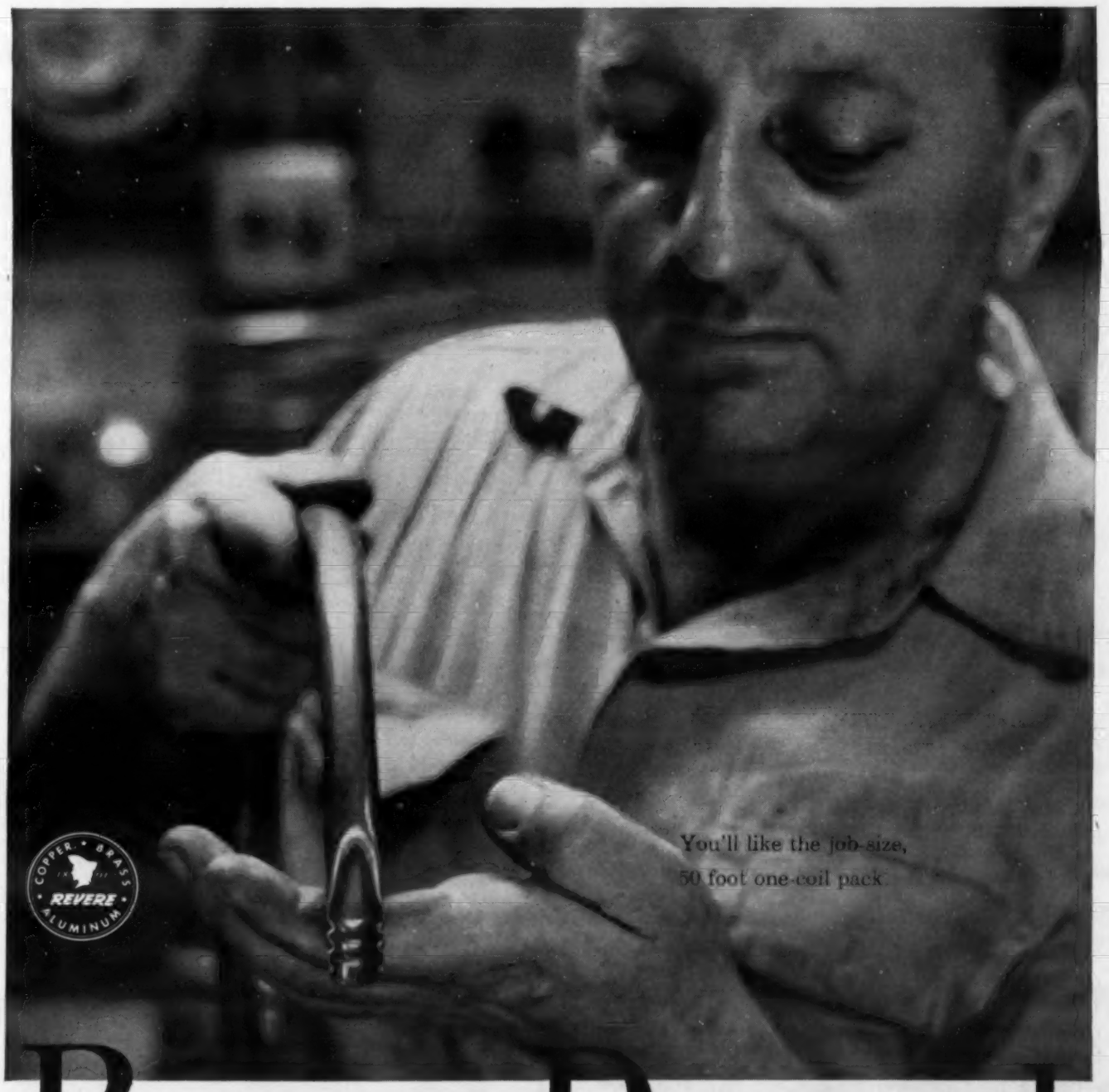
Dean 'Thermo-Panel Coil' Will Be Demonstrated at Western Metal Exposition

BROOKLYN—Dean "Thermo-Panel Coil" will be exhibited in booth 1244 at the forthcoming Western Metal Exposition in the Pan-Pacific Auditorium in Los Angeles, March 25-29.

Thermo-Panel Coil, which takes the place of pipe coils, will be demonstrated for the first time on the Pacific Coast, illustrating how it applies to tanks, vessels, vats, reactors, mixers, drum and valve warmers, the company stated.

Double crimp

Double crimp keeps DRYSEAL tube whistle-clean, bone-dry. Crimps are *tube*-size, too; slip easily through fittings. Dead-soft DRYSEAL means finger-easy, no-tool bending. Try it on your next job. Sizes ⅛" to ¾".



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You'll find a Revere Distributor close at hand.

REVERE COPPER AND BRASS INCORPORATED, *founded in 1801 by Paul Revere*

Hajoca To Consolidate High Point Branch Into New Greensboro Outlet

PHILADELPHIA — Officials of both companies have confirmed that Hajoca Corp. has purchased the Frank Hockett Supply Co., Inc. in Greensboro, N. C.

According to J. W. St. Clair, president of Hajoca, his company began operating this branch on Feb. 11. Hajoca's High Point branch will be consolidated with the new branch and all business in the Greensboro-High Point area will be conducted from the Greensboro location, 621-631 S. Spring St.

All of Frank Hockett's original staff will be retained and Gordon W. Smalley, manager of Hajoca's High Point branch, will move into the new branch to direct activities.

Hajoca Corp., wholesale distributor of plumbing, heating, air conditioning, industrial, and refrigeration supplies, with headquarters in Philadelphia, has 21 eastern seaboard branches.

Illinois U Issues I-B-R Cooling Research Bulletin

NEW YORK CITY—"Results of Cooling Research in the I-B-R Research Home" is a publication recently made available by the University of Illinois.

It outlines results of work done at the university under a cooperative plan with the Institute of Boiler and Radiator Mfrs.

Research Series I-B-R - 1, done under the supervision of Prof. Warren S. Harris of the mechanical engineering department, covers several summers' research work on cooling systems, the university pointed out.

Dual-Duct System Cools, Heats New M-H Regional Sales Office Year-Round

LINCOLNWOOD, Ill.—Minneapolis-Honeywell has moved its midwest regional sales office and distribution center to a new building in Lincolnwood, a suburb just northwest of Chicago. A humidity-controlled dual-duct system provides for year-round heating and cooling.

T. S. Carley, midwest regional manager, said the move to the new location (at 7350 N. Lincoln Ave.) was made "in the interests of better service to customers in the eight-state area covered by the regional office and its 14 branch offices." The former location was 351 E. Ohio, Chicago.

The new building has about 21,000 sq. ft. of floor space and is located on almost 100,000 sq. ft. of land. A large stock room occupies about one-third of the building. The other two-thirds includes a general office of 6,500 sq. ft., 18 private offices, a large conference room that can be used for meetings, a kitchen, an engineering drafting room, and rooms for demonstrations.

Facilities for Micro Switch, a division of Honeywell, also are included.

The temperature in each office room in the building is controlled individually.

The air each office receives is mixed individually right above the office, depending on the thermostat adjustment, and then diffused downward through ceiling ducts. Exhaust ducts also mounted in the ceiling help keep air circulating constantly. For extra comfort in winter, a large radiant panel at the perimeter of the building overcomes the chilling effect of the walls.

A large parking lot at the rear has spaces for 150 cars which is more than ample for visitors and for the 180 persons, including sales managers, engineers, draftsmen, and secretaries, who work there.

Bull Street Baptist Church To Be Cooled

SAVANNAH, Ga.—The congregation of the Bull Street Baptist church gave its building committee authority to proceed with a $300,000 expansion program, including air conditioning.

THIS unusual installation shows two 5-ton cooling towers installed in windows of a music store. Made by Kerstein Engineering Co., Charleston, W. Va. Carrier dealer, it is pointed out that the lower tower is in the record player sales area and is invisible from indoors.

Firm To Design, Supervise Dominican Cooling Program

ST. LOUIS—The firm of Paul Londe & Associates here has been commissioned by the Government of the Dominican Republic, to design and supervise the installation of an extensive air conditioning program.

The company made an extensive study and research in design for church and educational building air conditioning. Plans for moving to Ciudad Trujillo were being made by Londe.

Seattle Firm Moves To New Quarters

SEATTLE — Refrigeration Engineering Co. here recently moved into newly purchased offices at 1718 Broadway, consolidating all of its operations.

The new quarters, comprising 30,000 sq. ft. of floor space, provide room for the firms equipment display, service shop warehousing, offices, and the engineering and design department.

Since the company was founded in 1932 by Sherman W. Bushnell, it has grown until at present it serves the entire Pacific northwest and Alaska.

The company now has five partners: Sherman W. Bushnell, Jr., general manager; J. L. Brohamer, in charge of the contract department; Stanley H. Young, supermarket - business manager; J. Allan MacDonald, commercial refrigeration equipment manager; and Loring M. Johnson, service manager.

York Builds Branch In San Francisco

SAN FRANCISCO—A modernistic building being constructed for the use of York Div. of Borg-Warner Corp. will be occupied about April 15.

Dow Stone, branch manager of York's industrial department, said the new one-story building is located at 313 El Camino Real in the Brentwood Village area of South San Francisco, and will have a parking area for automobiles.

Offices and an engineering department are provided for Branch Industrial and Commercial departments serving northern California from Bakersfield to the Oregon line, and all of Nevada except Las Vegas.

A stock of parts for York maintenance accounts will be housed in the new building, Stone said.

Air conditioning will be provided by a York 5-hp. model R5G 175W year-round self-contained unit furnishing both heating and cooling, he explained.

The ceiling in the new building will be acoustically treated with Fiberglas for sound-proofing because of proximity to airways of San Francisco's International airport.

L. A. Montgomery of B. & M. Construction Co., general contractor, says this will be accomplished by building a T-bar drop ceiling, or suspended ceiling, on which the Fiberglas will be applied.

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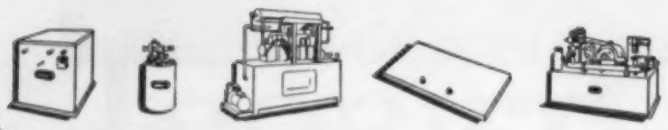
Be sure to see these new products of Heat-X, Inc., Dunham-Bush subsidiary, at booths 910, 1244-48-50.



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Expert Says

Design Influences Refrigeration Codes, Not Reverse; No Brake on Mfrs.

By Robert E. Lacey

DETROIT — "There is sound common sense behind refrigeration codes," declared John C. Rehard, retired chief safety engineer of the Department of Buildings and Safety Engineering here, at a meeting of the local section of American Society of Refrigerating Engineers.

Speaking on the effect that "Codes and Local Ordinances" have on design and installation of refrigeration equipment, Rehard said "Design influences the code—not the reverse! A code is no brake on a manufacturer.

"All fields involved in refrigeration — manufacturer, system designer, installer, and user— must combine to make a code work," Rehard stated. "There is a need for safety rules."

Contractors have a "greater share of the responsibility" to watch over public safety than the average man, he continued. "After all, you designers and installers are the public too."

The new plumbing code as amended in August of 1956 is of "much interest to the system designer," he declared. "With the demand charge on use of water in an air conditioning system now in effect, the code could mean changes in design."

In addition, certain features of this code, such as color coding of secondary water system piping, the "double check valve requirement," and the "10-ton cooling tower exemption" should be "carefully noted by the design engineer and installer," Rehard cautioned.

In explaining the local refrigeration code to about 40 engineer members and guests, Rehard said "the code is of greatest importance to the contractor."

It is almost "impossible to draft a perfect code," he asserted, but Detroit, "a pioneer in codes," has come as "near as possible now" for governing equipment in its building and plumbing codes.

First ordinance was worked out here in 1915, he went on, and in May, 1916 the initial city code was adopted.

During the '20's was the era of "smaller or boiled down units." Safer refrigerants and multiple units came into more general use thus creating the need to revise Detroit's code.

In 1929 amendments were added to the city code, but then it wasn't changed until the need for standardization became apparent in the '30's. The American Standards Association had offered the B.9 standard code, and Detroit added it, although non-legally, by agreement of all concerned, to its code in 1939.

From 1939 until 1945 when Detroit wrote its own refrigeration code and adopted it on Aug. 28, the B.9 was effective. The new local ordinance, Rehard commented, was a revision of the B.9. But the latter "hadn't been kept up to date."

"Since no code is worthwhile from the day it is printed, Detroit's action was deemed by us to be better," he asserted. Detroit could bring its code up to date "at will," which it did in 1948 and again in 1949. "Adoption by reference procedure cuts the work involved," Rehard pointed out.

Standardization by this time, he continued, had gained momentum because the "different sets of rules hurt the manufacturers of refrigeration equipment."

ASRE and ASA revamped the B.9 code, had "dressed it up," so it could readily be brought up to date and Detroit revised its code again in 1950.

Then, by ordinance effective Jan. 2, 1952, Detroit "came as near as possible to getting a good refrigeration code at this time," he said.

There are "other laws that affect the refrigeration industry," the specialist indicated. And the industry "should take advantage of work done in other fields."

Detroit adopted a new building code "patterned after the builders' own code," in June of last year that is "of particular importance to the contractor."

However, contractors "should work with the new code—don't be scared of it!" Rehard opined.

"Overlapping of the various parts of the code is good," he stated. "The whole thing may not be as bad as it appears."

Name Airtemp Dealer

PADUCAH, Ky. — Announcement of the appointment of a new dealership for Chrysler Airtemp—Paducah Sheet Metal & Roofing Co., 830 Jackson St.— was made here.

32 Technical People In New Firm To Service Appliances

CINCINNATI — All Services, Inc. was recently formed here to service major appliances.

The company will concentrate its 32 field technical personnel on servicing all Philco, Crosley, and Bendix products. There are six other employes.

Officers are Bert Brown, president; Art Wood, secretary-treasurer; and Milton M. Bloom, vice president. Brown was formerly service manager for Tri-State Distributing Co. for 25 years. That firm handles Philco and Bendix products.

Wood was with Crosley-Bendix Divs., Avco Mfg. Corp., for 20 years, and seven years as service manager with Modern Distributing Co.

Both these distributing organizations shut down their service departments.

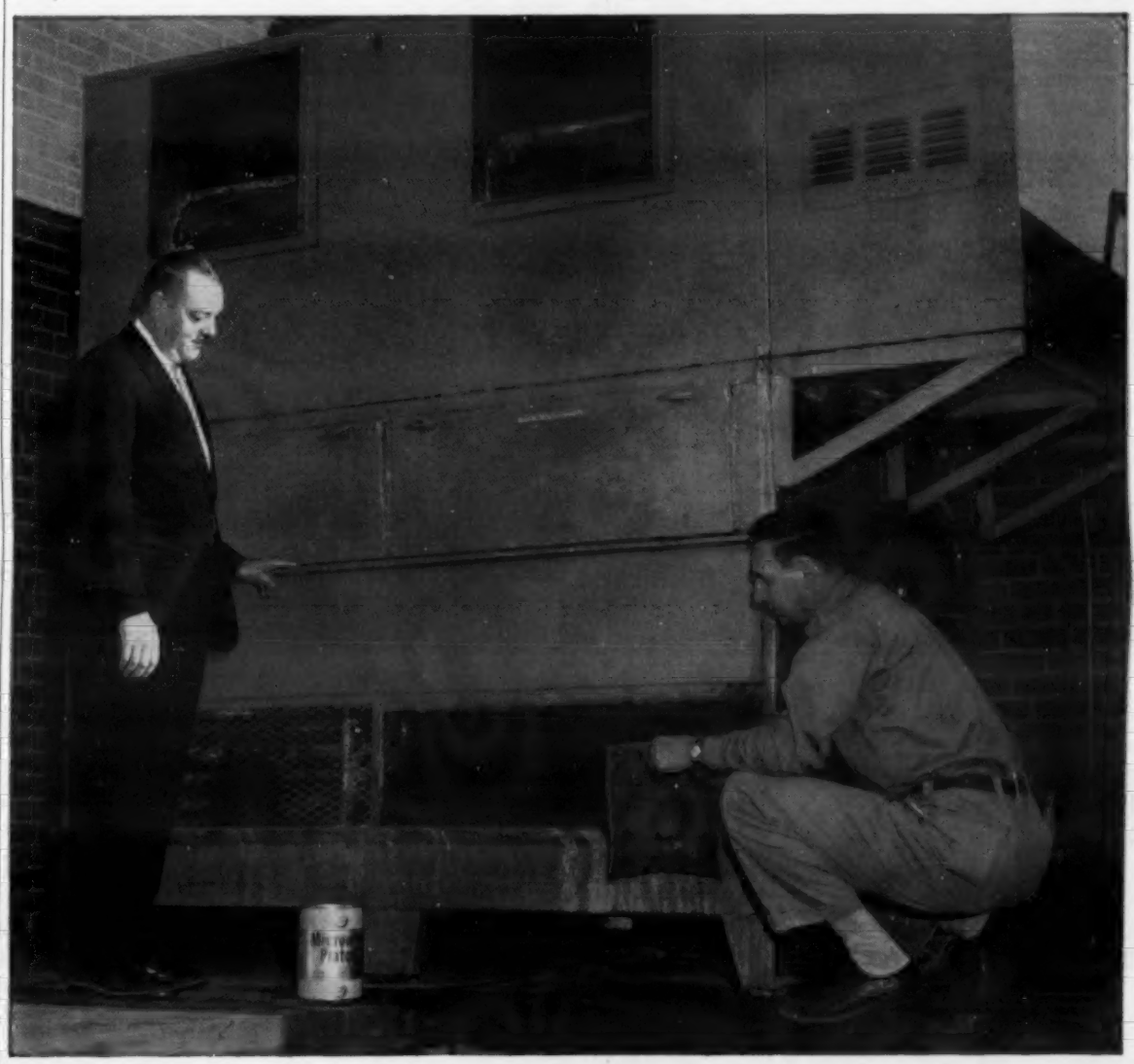
Roth With Recold Engineering Staff

LOS ANGELES — Lawrence P. Roth has joined the engineering department of Refrigeration Engineering, Inc. here, manufacturer of "Recold" equipment.

L. P. Roth

A pioneer in the refrigeration field on the West Coast, Roth started his career in refrigeration in 1926 with Servel. He formed Refrigeration Service, Inc., in 1928 and it became one of the first wholesale refrigeration supplies organizations in the entire country.

The "Liquid Line," first house organ to be distributed by a supplies wholesaler, had wide distribution throughout the industry.



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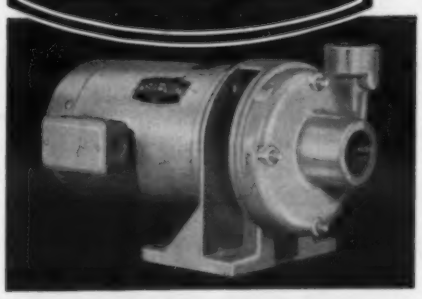

It's faster, easier, less expensive to install Sta-Rite Type AC pumps. These pumps are small, easy-to-handle. Because you can rotate the discharge outlet; there are no "fitting-in" headaches. Install—and forget service worries, too. Why? Bronze impellers; full-power motors; leak-proof seal. Best of all try this one for price.

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Ask your wholesaler. And write for copy of new bulletin describing Sta-Rite Air Conditioning Pumps.

SEE STA-RITE PUMPS DURING THE SHOW BOOTH N-442

IN CANADA: STA-RITE PUMPS (CANADA) LTD., AJAX, ONTARIO

"MICROMET® PLATES have lowered maintenance costs —the condensing units are clean"

Ralph M. Appel, Sales Engineer, Hussmann Distributing Company, Inc., St. Louis, Missouri

The photograph shows Mr. Appel supervising the placement of Micromet Plates in one of their installations, a 40-ton water tower. Micromet Plates have been in use on their installations for over two years with the results noted above.

Mr. Appel has had experience with all of the Calgon® Big 3 products. He reports excellent results with Calgon Scale Remover, and Calgon Algaecide. In common with a great many other refrigeration men, he has every confidence in Calgon products.

Micromet Plates are the easiest and most economical way to keep cooling tower systems free of scale and corrosion. Hung in the water spray in plastic mesh bags, one charge normally lasts a whole season.

When scale has formed in a system, Calgon Scale Remover does a fast, safe job of removal. Action is buffered to protect metals in the system and a built-in pH indicator shows how much to use, and tells when the system is clean. Calgon Algaecide is your best choice for removing algae and slime and keeping growths from forming.

SEE YOUR REFRIGERATION WHOLESALER FOR CALGON'S BIG THREE!

CALGON COMPANY

A DIVISION OF HAGAN CHEMICALS & CONTROLS, INC.
HAGAN BUILDING, PITTSBURGH 30, PENNSYLVANIA
DIVISIONS: CALGON COMPANY, HALL LABORATORIES

Air Conditioned Sidewalks Are 'For Real' In Texas

SAN ANTONIO—Big, booming Texas has done it again!

Some months ago the Lone Star State became the first in the nation to boast completely air conditioned sidewalks in one of its new, ultra-modern shopping centers in San Antonio.

And now the returns coming in are showing store sales far ahead of what is normally expected following the opening of a shopping center, it was reported.

16-Ft. Wide Walk Conditioned

North Towne Plaza, one of San Antonio's newest shopping areas, air conditioned its 16-ft. wide sidewalk with three of Carrier Corp.'s 7½-hp. "Weathermaker" units, in order to give shoppers the advantage of cool comfort while making their purchases.

The plaza's shopping facilities are similar to the old open air bazaars, in which merchants spread their wares before stalls set up in large sheds and shoppers wandered from one display to the other. At the Plaza, the stores leave their doors open, and use the large open area in front of the door for displays, and arrangement made possible only by the air conditioned mall.

North Towne's sidewalks are roofed over, like many sidewalks in the south. The walks were closed off on the parking area side by glass panels, and the air conditioning units were installed in three attractively designed adobe brick closets located around the walk.

Three sets of electrical door eyes, one at each end of the walkway, and the third in the middle, open the doors automatically for shoppers.

Air-Cooled Condenser Located on Roof

The Carrier units are of the waterless type using air-cooled condensers located on the roof. Largest of the three closets in which the air conditioners are located also includes a 220,000 Bt.u. gas-fired furnace to supply hot water for three 70,000 B.t.u. heating coils in the Weathermakers.

NORTH TOWNE shopping center, San Antonio, is said to be the nation's first shopping center to install an air conditioned sidewalk. Self-contained packaged air conditioners are concealed in the double closet in the picture's center and provide cooling in summer and heating in winter.

Store owners have praised the air conditioned sidewalk highly. The open doors lead to "tremendous increases" in store traffic and the sale of impulse purchase items because of the "open-air" type of display, it was stated.

The proprietor of a children's shop in North Towne reports sales averaging 25 to 30% higher than shops located in other shopping centers; shoe stores, fashion shops, clothing, variety, hardware stores, and supermarkets located in the area show growth figures which were not anticipated until from three to five years after the North Towne was opened.

George W. Delavan, Jr. of Delavan Development Corp., builder of North Towne, has estimated the cost of operating the air conditioning at approximately $150 per month.

Cooling Saves Cleaning Bills

Store owners realize savings on the air conditioning, it was pointed out, through lower cleaning and upkeep bills. The proprietor of one variety store stated that the cost of cleaning the thousands of items he stocks, which normally amounts to about 3% of the total operating cost, has been halved. Similar reports have come from other North Towne store owners.

Mile-Long Mall To Be Air Conditioned

DALLAS — A self-contained suburban shopping and business center with air conditioned sidewalks and "jet propelled" electric power is scheduled for completion here in about four years.

The $125 million project, called Exchange Park, will include four office buildings—the first to be finished in May—a department store, 150 retail shops, a 1,000-room luxury hotel, a 1,500-seat auditorium, and a medical center.

All 3.2 million sq. ft. of floor space and the mile-long network of enclosed pedestrian malls will be air conditioned year-round. An elaborate engineering arrangement for making its own electricity, together with cooling and heating, will accomplish this in a single plant which combines use of gas and steam turbines.

It is believed that this is the first time a gas turbine-powered air conditioning package will be tried on such a large scale.

Three gas turbines, operating much like a jet aircraft engine except they burn natural gas, will drive three 5,000 kw. generators. Hot waste exhaust gases from the turbines will be piped into two special steam boilers. These, together with two conventional boilers, will provide winter heat. In hot months, they'll drive steam turbine-operated air conditioning compressors.

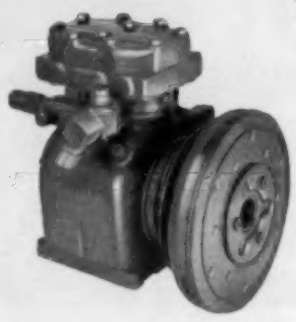
The center's six-story high, $6.5 million power-air conditioning plant will deliver a peak power load of 15,000 kw., enough for a city of 35,000, and about 13,000 tons of air conditioning.

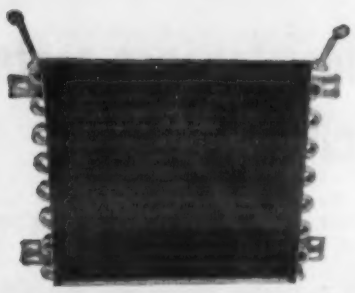
The new center is nestled on 125 acres of wooded land about four miles from downtown Dallas. Permanent work force is expected to number some 25,000 persons.

A 14-story bank building, an airlines office building of 10 stories, connecting shops and mall are scheduled to be finished later this year. Third office structure will be occupied by insurance concerns, fourth will be for general leasing.

Shops will front on 40-ft. wide malls which will stretch about a mile from the airlines building at the upper part of the L-shaped project to the hotel at the lower corner, it was explained.

Do You Require Automotive Air Conditioning Units or Components?





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COMPLETE SYSTEMS

Available to fit most popular makes of cars from 1954 through 1956. Engineered and designed for specific applications. All kits are complete, no extras to add. Eaton's own magnetic clutch is incorporated in all systems. Simplified under-hood installation.

MAGNETIC COMPRESSOR DRIVE CLUTCHES

Engineered to fit most applications; compact design; peak torque factors; positive compressor cycling; 6 and 12 volt assemblies.

COMPRESSOR and CLUTCH ASSEMBLIES

High capacity popular make automotive compressors assembled to Eaton magnetic clutch units. Prepared for immediate installation.

CONDENSER COIL ASSEMBLIES

Single and double row coils; ½" S.A.E. inlet, ⅜" S.A.E. outlet fittings; furnished with end brackets for mounting; copper tubing and aluminum fin construction; maximum condensing capacities.

EVAPORATOR COOLING UNITS

Adaptable to most cars and truck cabs; available in 6 and 12 volt models. Coils and fans enclosed in moulded plastic case. Full directional air flow control; variable fan speed control. All assemblies complete with expansion valves. Engineered for maximum cooling efficiency.

CRANKSHAFT ADAPTER PULLEYS

Add-on type; A-section ½" belt grooves; engineered for proper fit. Adaptations for most cars.

IDLER PULLEY ASSEMBLIES

Pulley diameter, 4"; belt groove, ½"; stamped steel construction; M.R.C. ball bearings; assembled with threaded stud.

As a pioneer and leading manufacturer in the automotive air conditioning field, Eaton Manufacturing Company has developed automotive air conditioning units with many outstanding features—including compactness, light weight, high cooling efficiency, and simple installation. These units have been performance-proven in thousands of vehicles. High volume production for the automotive industry makes possible very advantageous prices. Most of the above items are available immediately or on short notice. Let us know your requirements.

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EAST 65th AND CENTRAL • CLEVELAND 10, OHIO

For more information about products advertised on this page use Information Center, page 54.

NAPC Survey Finds 10% Is Apprentice to Journeyman Average

WASHINGTON, D. C. — A compilation of answers to a questionnaire on various apprenticeship programs was recently issued by the chairman of the apprenticeship committee, National Association of Plumbing Contractors.

Fifty-six reports show there "apparently were no training" programs in operation, said F. C. Schilling, NAPC chairman of the Apprenticeship-Apprentice Text-Trade Education committee.

"Some conclusions may be drawn by interested parties," Schilling continued. "There is need for more information to be spread around association members as to amounts being paid for apprenticeship training, and where the money is spent, and who controls the fund.

"I notice from this survey," he stated, "the average percentage of apprentices to journeymen in our trade is about 10%."

Schilling received answers from association units in 41 states, 118 cities, towns, and counties, and one territory. Questions asked were:

How is money raised for apprenticeship training? About how man journeymen and appretices are in your local or district? Do you pay a definite amount on journeymen and apprentices? Is the amount a certain percentage of the employe's pay? How is this fund impounded? Who controls spending of this money?

Replies indicated that the money "was deposited and controlled by Joint Apprenticeship committees" in 45 cities, Schilling said. One city has the committee's secretary deposit money controlled by the Joint Apprenticeship unit. Three reported that the money was deposited by the business agent and the amount controlled by the joint committee. Another city reported money deposited to the union account was spent under control of the joint committee. Two others reported money deposited and controlled by the association.

One city reported paying ¼ cent an hour into the fund, Schilling disclosed. Three of 17 reporting 1-cent payment per hour have the employer and union paying that amount on journeyman's wages only. Three more pay 1½ cents an hour, eight 2 cents per hour for all needs, it was added. Three western cities indicated the employer pays 5 cents an hour for all needs and call this a development fund. One pays one half of 1%, four pay 1% of the apprentice's income, while two pay 2% of the apprentice's wages. One city reports paying 1% of income from employers and union for one month (July) only.

Referring to a business magazine article wherein the president of the United Association declared that the union was losing more men than NAPC was training, Schilling said:

"This should be acted on by all committees, as I understand the new UA by-laws permit local groups to control the number of apprentices through agreements."

22 Complete Trane Sales Engineering Training; 15 Assigned to U. S. Offices

LA CROSSE, Wis.—Twenty-two graduate engineers from colleges and universities in the U.S. and Canada recently completed an intensive sales engineering training program at The Trane Co., air conditioning and heating equipment firm.

The "post-graduate" course helps prepare the men for their new industrial positions by giving them specialized training on practical applications of engineering, it was pointed out.

Fifteen of the men have been assigned to Trane U.S. sales offices where they will receive additional training as sales engineers. The men and their assignment areas are:

Jerry G. Bartos, Dallas; Virgil E. Carrier, Tulsa, Okla.; Raymond E. Crawford, Greensboro, N. C.; William F. Dudek, Seattle; James J. Duffy, Detroit; Edward L. Duncan, West Hartford, Conn.; Thomas M. Elliott, Jr., Toledo; Kenneth A. Gablin, Philadelphia; Sam H. Harper, Jr., Houston, Texas; David R. Hodgson, St. Paul; Robert D. Krouner, Buffalo; Robert W. Leonard, San Francisco; Richard E. Shimshak, Pittsburgh; William G. Wofford, Jr., Dallas; and Raymond R. Youell, Milwaukee.

Of the remaining seven men, Hubert R. Gangl, Jr., David L. Jessee, and Roger O. Zoellner will stay at the La Crosse home offices of the company and Ted D. Digel, Glen T. Narfason, William H. Reid and Ernest Schellenberg will join the firm's Canadian sales operation.

FIRST evaporative condenser completed in new $1 million Baltimore Aircoil Co., Inc. plant draws congratulations from John Engalitcheff, Jr. (r. center), president, to Ray R. Forseille, vice president-production. William E. Kahlert (l. foreground), vice president-sales, Joseph Pope (r. foreground), plant superintendent, and some key factory personnel look on. Within two months after the plant was opened last Dec. 1, production of evaporative condensers and cooling towers was said to be at an all-time high for the firm.

To Cool Addition

CONCORD, N. C. — Chadbourn Gotham, Inc. of Charlotte will double the production facilities of its Shannon Div. plant at Concord with construction of a 10,000-sq. ft. addition to the existing building.

The new wing will be completely air conditioned.

WAGNER ELECTRIC MOTORS...THE CHOICE OF LEADERS IN INDUSTRY

National Home Office of the Allstate Insurance Company.

Wagner Motors help B & G Pumps meet their toughest test... QUIET OPERATION!

Circulating pumps used in hot water heating systems must be silent—vibrationless in operation, since they are the connecting links between the boiler room and the structure itself. A prime requirement for quiet pump operation is an electric motor that operates almost silently, yet has plenty of stamina to hold up under years of hard, steady operation.

That's why Bell & Gossett Company used Wagner Motors on the Universal Pumps in the Allstate Insurance Company home office. These quiet-type motors are known for smooth balance and quiet operation.

Perhaps you have a specialized motor application . . . if so, remember, there's a Wagner motor to fit every need . . . a complete line for all current specifications with a wide variety of enclosure types and mountings.

Your nearby Wagner engineer can help you select the *right* motor to meet your specifications. Call the nearest of our 32 branch offices or write us.

Standard resilient mounted Wagner Motors, up through 5 hp, can be used for special applications where extremely quiet operation is demanded. Sleeve or ball bearings.

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Operating Costs of Residential Air Conditioning and What This Data Means to Dealers and Installers

Studies on Houses of Identical Construction Indicate Operating Costs No Great Concern To Users, Prospects

By R. A. Gonzalez, Director of Technical Service, Airtemp Div., Chrysler Corp.

Years ago, in the early days of residential air conditioning, one of the frequently asked questions was, "What will it cost to operate?" Today, the same question is frequently asked. However, because of the large number of residential installations that have been made recently, it is more pertinent to phrase the question in terms of "What does it cost to operate residential air conditioning?"

The question is particularly important when it is asked by a prospective buyer of residential air conditioning. When we have the attention of a prospective purchaser, we particularly want useful answers to this question. Now that we have established that we have an important question before us, let us look at the available facts.

Many actual surveys and studies have been made by the securing of actual operating costs on existing installations. For example, here is a summary of the operating costs of some 3-hp. installations as gathered by the Truog and Nichols organization of Kansas City for the 1955 season.

Their survey covered installations ranging from 2 hp. to 8 hp. in size and this summary on 3-hp. units shows the range and variation of results that were also recorded on the other sizes.

Name	Kw. Used	Temperature Maintained Normally
McCaughy	1,520	76°
Boley	1,800	78°
Douglas	2,200	80°
Baldwin	2,280	72°
Woolf	2,400	75°
Larkin	3,000	70°
Olson	3,800	77°
Heining	3,800	73°
Goldstein	4,000	72°
Hodson	4,200	78°
Fitzgerald	4,600	81°
Shotwell	5,040	76°
Lorenz	5,040	74°

This survey confirms the range of results that has been secured in other cities by similar surveys. It is evident that it is not possible to draw any clear conclusions on operating costs from such data. The wide variations of this and similar studies can be attributed to differences that can be grouped into the three following classifications.

Differences Grouped In 3 Classifications

A. There can be significant differences in the heat gain of various houses of the same floor area, due to variations in construction, insulation, amount of glass, orientation, and shading.

B. There can be differences in cooling capacities and corresponding power consumptions by different equipment and such differences as exist can be magnified by the installation methods and details.

C. There can be considerable differences in the way that different homeowners operate their equipment.

From a practical standpoint, the facts remain that there are wide variations in power usage for residential purposes. Also, there has not been any explanation of these variations that has been proven to the point of acceptability. Yet, this matter of operating costs is of very real importance to prospective purchasers and to the mortgage underwriting people of the governmental agencies and private concerns.

If it were possible to evaluate the extent of variation that is caused by the way that different homeowners operate their equipment, we would be considerably closer to a practical evaluation of one of the most important facts of this problem. We could get such data if we could get the ideal conditions.

Let us suppose that we had a row of houses, all built at the same time with the same floor plan, the same insulation, the same amount of glass and orientation, and the same equipment with reference to cooking and hot water heating facilities. Then suppose that all of these houses are air conditioned with identical equipment of the same manufacture.

Now, if several different families move into these houses and operate their air conditioning to suit themselves, we should be able to get an indication of the variation in power usage for summer air conditioning due to the way the people vary in their use of the equipment.

As all of the other variables have been reduced to a minimum, the variations due to the people should certainly be the major factor in the differences between the power usage under these circumstances.

(Continued on next page)

The original data on power consumption given in the accompanying article was first prepared for presentation in a paper "Power Usage Variations for Summer Air Conditioning of Identical Residences," delivered by Mr. Gonzalez at the semiannual meeting of the American Society of Refrigerating Engineers in Boston.

However, this particular article is based on a talk "Operating Costs of Residential Air Conditioning and What This Data Means to Installers and Sales People," which the author has presented before various ASHAE and ASRE local sections. In the article he interprets the meaning of the accumulated data on power consumption and costs, in terms of what it will mean to sellers and buyers of air conditioning. His rather startling conclusion: discussion of operating costs can become a useful sales tool.

Tabulation 1

1955 Kwh. Consumption
Memorial Ave. Addresses, Haddonfield, N. J

House No.	April	May	June	July	August	Sept.	October	7 Mo. Total
212	160	106	82	234	82	104	130	898
216	382	334	272	388	876	420	398	3,070
220	176	106	132	642	788	232	152	2,228
224	230	150	142	806	782	368	186	2,664
228	142	98	80	104	590	318	106	1,438
232	396	276	334	1,438	1,486	828	400	5,158
236	356	280	368	1,320	1,550	652	288	4,814
240	294	204	238	868	950	426	362	3,342
244	374	240	330	1,524	1,472	686	290	4,916
248	194	132	190	802	880	352	162	2,712
252	218	192	242	1,034	1,292	736	286	4,000
260	218	160	156	170	160	204	180	1,248

NOTE: House 212 had intermittent occupancy during warm weather. House 260 is not air conditioned.

Tabulation 2

Estimate of Power Usage for Non-Air Conditioned Month Haddonfield, N. J.

House No.	Average per Month (¼ of Four Month Total)
216	346.5
220	141.5
224	177.0
228	106.5
232	351.5
236	323.0
240	274.5
244	308.5
248	169.5
252	234.5
260	178.5

Total use for non-air conditioned house is 534 or at rate of 178/month.

DISTRIBUTORS AND DEALERS WANTED

Get in now for "STOP and GO" Cooling!

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Stop In Any Desired Room
Plug in the KOOL-A-BOUT yourself . . . and you're in business. It requires no window installation . . . blocks no light or view!

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KOOL-A-BOUT's mounted on easy-gliding wheels . . . can be moved from room to room like a vacuum cleaner. Cools wherever it's needed!

Model WK 11 D

Do-It-Yourself Installation
Simple Water Connections

WHITEHALL
KOOL-A-BOUT
Portable Room Conditioner

KOOL-A-BOUT gives you something really different in a selling story . . . and it's sure to stop traffic wherever you show it. KOOL-A-BOUT overcomes every objection to window units . . . assures greater customer satisfaction with more cooling for the dollar. Yes, the green light's showing for profitable room air conditioner sales this year . . . if you have KOOL-A-BOUT!

GET THE KOOL-A-BOUT STORY . . . send a postcard today!

manufactured by
WHITEHALL ENGINEERING COMPANY
1632 South Michigan Avenue, Chicago 16, Illinois

Specify **FURNAS ELECTRIC CONTROLS**

THE BEST FOR AIR CONDITIONING AND REFRIGERATION

These starters and contactors provide across-the-line control of hermetic and general purpose motors used in the air conditioning and refrigeration industry. They have been specifically designed to satisfy the particular performance requirements of the loads and duty cycles, plus the space and economic requirements set forth by the air conditioning and refrigeration industry.

Visit our Booth No. 231 at the 13th International Heating and Air Conditioning Exposition.

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BATAVIA, ILLINOIS
SALES REPRESENTATIVES IN ALL PRINCIPAL CITIES

For more information about products advertised on this page use Information Center, page 54.

Tabulation 3

Estimate of Power for Cooling—Haddonfield, N. J.
(Total Power for Air Conditioned Months Less Average for Non-Air Conditioned Month

House No.	Aver. Kwh. for Non-A/C Month	Usage July	Aug.	Sept.	Totals for Cooling Kwh.	Dollars
216	347	41	529	73	643	$12.86
220	142	500	646	90	1,236	25.59
224	177	629	605	191	1,425	28.85
228	107	....	483	211	694	14.81
232	352	1,086	1,134	476	2,696	53.92
236	323	997	1,227	329	2,553	51.06
240	275	593	675	151	1,419	28.38
244	309	1,215	1,163	377	2,755	55.10
248	170	632	710	182	1,524	30.93
252	235	799	1,057	501	2,357	47.14

Tabulation 4

Estimate of Power for Cooling—Haddonfield, N. J.
(Houses Divided Into Groups by Usage)

House No.	Aver. Kwh. for Non-A/C Month	Usage July	Aug.	Sept.	Totals for Cooling Kwh.	Dollars
244	309	1,215	1,163	377	2,755	$55.10
232	352	1,086	1,134	476	2,696	53.92
236	323	997	1,227	329	2,553	51.06
252	235	799	1,057	501	2,357	47.14
248	170	632	710	182	1,524	30.93
224	177	629	605	191	1,425	28.85
240	275	593	675	151	1,419	28.38
220	142	500	646	90	1,236	25.59
228	107	....	483	211	694	14.81
216	347	41	529	73	643	12.86

Operating Costs of Home Units--

(Continued from preceding page)

The builder activity in constructing communities of air conditioned houses has provided practically the ideal test conditions outlined in the preceding paragraph. It is only necessary to select groups of houses having the same floor plan, orientation, and equipment to have the conditions where all other variables are reduced to a minimum and where variations in power use must be attributed mainly to the way that different householders operate the equipment.

Case Histories of 3 Groups of Houses

The three groups of houses on which data has been secured have a considerable geographic distribution. The summary information follows.

Case 1—Twelve houses in Haddonfield, N. J.

1,100 sq. ft. of slab on ground, single story construction.

Insulation: Triple reflective in ceiling and single reflective in walls.

Cooling Equipment: Air-cooled condensing, nominal 2 hp. Rated at 1.76 tons at current A.S.R.E. test conditions.

Year of Test Data: 1955, second season of occupancy.

The data, as secured from the power company, is given in Tabulation 1. One of the houses was intermittently occupied and the data from that house is not of value. Note that an un-air conditioned "control house" in the same row affords continuing electric consumption usage for the summer months.

Data of the electrical consumption during four months with no air conditioning usage has been listed in Tabulation 2. The average electrical consumption has been computed on a monthly basis for each residence.

It is on this point that the electrical consumption data on the control (non-air conditioned house) is of value. As the data indicates, the control residence used the same average rate of electrical current for the summer months as were used in the same residence in the non-cooling months.

It is also interesting to note that there is a considerable variation in the amount of electrical energy consumed in the various homes in the non-air conditioning months. This variation is fairly constant. That is, each home appears to have its own pattern of behavior with regard to the amount of energy used by the month, in the non-air conditioning months.

Tabulation 3 shows the consumption for the air conditioning months with the average usage subtracted from the total usage for these months. In other words, the average usage for the non-air conditioned months has been subtracted from the total usage for the houses in the months of July, August, and September as a means of approximating the amount of energy used for air conditioning purposes.

Tabulation 4 shows the same data as Tabulation 3 with the houses arranged into groups of descending power usage for air conditioning purposes. The variation in consumption of energy for both air conditioning and non-air conditioning purposes is interesting. The data has been converted into dollars as some prefer to think of power in terms of dollars rather than in terms of kilowatts.

Case 2—Twelve houses in Dallas, Texas.

1,150 sq. ft. of slab on ground, single story construction.

Insulation: 3-in. fill insulation in ceiling and 2-in. batt insulation in walls.

Cooling Equipment: Water-cooled condensing units of 2 hp. nominal size, with cooling towers.

Year of Test Data: Second season of occupancy.

The approximations of power used for air conditioning, and cost in dollars, is given in Tabulation 5.

Case 3—Eight houses in Tulsa, Okla.

1,200 sq. ft. of slab on ground, single story construction.

Insulation: 2-in. batt insulation in ceiling, ½ in. insulating sheathing in walls.

Cooling Equipment: Air-cooled condensing, nominal 3 hp. Rated at 2.76 tons at current A.S.R.E. test conditions.

Year of Test data: 1955, First season of occupancy.

The approximations of power used for air conditioning, and cost in dollars, are shown in Tabulation 6. This group of houses confirms the wide variation of power used for air conditioning due to the way that the individual homeowners operated their equipment.

Tabulation 7 shows the residential power rate data applying to the three groups of houses.

Tabulation 5

Estimate of Power for Cooling—Dallas, Texas
(Houses Divided Into Groups by Usage)

House No.	Aver. Kw. Non-A/C Month	Approximate Kw. Use For Air Conditioning June	July	Aug.	Sept.	Totals for Cooling Season Kwh.	Dollars
I	314	1,135	1,265	1,388	971	4,759	$78.60
H	231	1,134	1,292	1,308	969	4,704	77.70
F	169	996	1,151	1,081	971	4,199	69.10
K	273	735	919	1,043	859	3,556	58.60
J	128	558	1,002	1,000	756	3,316	55.75
L	194	570	953	1,038	621	3,182	52.50
G	152	826	681	1,066	472	3,045	50.90
D	275	653	725	905	602	2,885	47.00
E	120	582	784	854	419	2,639	45.55
A	183	....	916	1,033	676	2,625	43.30
B	301	673	230	884	437	2,224	36.70
C	206	393	716	542	321	1,972	32.55

Tabulation 8 shows a summary of the calculated kilowatt hours for summer air conditioning for the three groups.

RESULTS

The study clearly shows that wide variations in power consumption for air conditioning purposes do occur even when all differences of heat gain and equipment performances are eliminated or are reduced to the minimum. This group of studies further indicates:

1. There are wide variations in power used for air conditioning just as there are variations in residential power used for

(Concluded on next page)

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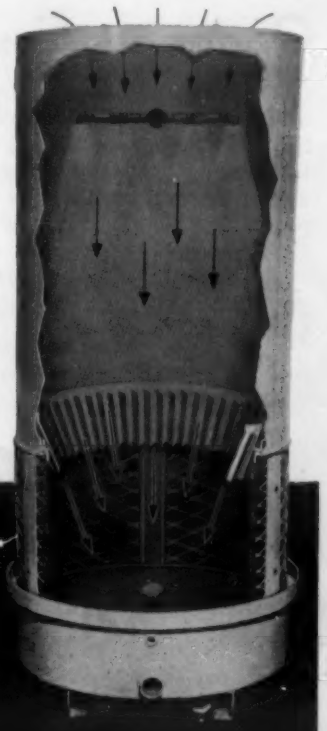

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Tabulation 6

Estimate of Power for Cooling—Tulsa, Okla
(Houses Divided Into Groups by Usage)

House No.	Average Kw. Non-A/C Month	Approximate Kw. Use For Air Conditioning July	Aug.	Sept.	Totals for Cooling Season Kwh.	Dollars
E	380	1,912	1,492	916	4,320	$108.00
F	267	1,593	1,533	933	4,059	101.50
B	373	1,627	1,227	827	3,681	92.00
A	240	1,440	1,200	1,040	3,680	92.00
G	223	1,217	1,097	819	3,133	78.20
H	456	1,380	1,020	504	2,904	72.60
C	133	1,147	747	507	2,401	61.00
D	439	1,201	481	411	2,093	52.30

Tabulation 7

Light and Power Rates

Camden, N. J.
First 14 Kwh. $1.00 (Min.)
Next 26 Kwh. at 3.8¢ per Kwh. .988
Next 50 Kwh. at 2.7¢ per Kwh. 1.35
Next 100 Kwh. at 2.5¢ per Kwh. 2.50
(First 200 Kwh. ..... $5.84)
All over 200 Kwh. at 2¢ per Kwh.

Dallas Texas
First 12 Kwh. $ .60 (Min.)
Next 55 Kwh. at 3.85¢ per Kwh. 2.12
Next 100 Kwh. at 2.75¢ per Kwh. 2.75
(First 167 Kwh. ..... $5.47)
All over 167 Kwh. at 1.65¢ per Kwh.

Tulsa, Okla.
First 16 Kwh. $1.00
Next 34 Kwh. at 3.5¢ per Kwh. 1.19
Next 100 Kwh. at 3.0¢ per Kwh. 3.00
(First 150 Kwh. ..... $5.19)
All over first 150 Kwh. at 2¼¢ per Kwh.

Tabulation 8

Calculated Kw. per Hour Consumption per Summer Air Conditioning of Three Groups of Houses

Group 1 (New Jersey)	Group 2 (Dallas)	Group 3 Tulsa	Percentage Variations Group 1	Group 2	Group 3
2,755	4,759	4,320	100%	100%	100%
2,696	4,704	4,059	98%	99%	94%
2,553	4,199	3,681	93%	92%	85%
2,357	3,556	3,680	86%	78%	85%
1,524	3,316	3,133	55%	73%	72%
1,425	3,182	2,904	52%	70%	67%
1,419	3,045	2,401	52%	67%	56%
1,236	2,885	2,093	45%	63%	48%
694	2,639	....	25%	58%	....
643	2,625	....	23%	58%	....
....	2,224	....	....	49%	....
....	1,972	....	....	43%	....

Operating Costs of Home Units--

(Concluded from preceding page)

other purposes in identical houses. In terms of the high consumers, the low consumers used less than one half as much power for air conditioning identical houses.

2. There is not any definite relationship between the power used for air conditioning and for non-air conditioning purposes. In other words, the higher power consumers in the non-air conditioning months are not always the high users of power for air conditioning.

3. Many of the homeowners are currently exercising considerable manual selection of operating time on their own air conditioning equipment. There is not any evidence that the usage variations are motivated by reasons of economy any more than by reasons of personal preference.

For example, if economy were the major consideration, it would seem reasonable to expect the power consumed for air conditioning to bear a closer relation to the power consumed for other purposes.

4. The variations in power use due to the operating preferences of the homeowners are currently of such magnitude that field testing for differences in equipment and construction effects cannot be expected to yield conclusive answers.

But where does this important information leave us with reference to our problem of giving a good answer to the question of "What does it cost to operate residential air conditioning?"

Costs Subject To Human Factors

For those who have a scientific and an academic interest in the subject, the foregoing studies will demonstrate that residential operating costs are currently very much subject to human factors.

From the standpoint of answering the prospective purchaser's question, we now can proceed with the definite proof that there is not any accurate numerical answer. With this information in hand and with other information that we already have, we can proceed to evaluate the problem as a sales problem.

'Significant Items'

Among the other important items of information that we already have on this subject, the following appeal to me as being particularly significant.

1. Owners of residential air conditioning practically never complain of operating costs.

2. The analytical owners frequently find that their operating costs are offset by savings in other categories of expense.

From a sales standpoint, we are more concerned with what motivates the prospect's question than we are with the question itself of "What does it cost to operate residential air conditioning?"

In the majority of cases, the prospective purchaser is expressing a concern or a fear that, if he does agree to assume the purchase of the equipment, will he later find that the operating costs are so high that he will not be able to enjoy the benefits of his purchase? From the experience of the many users, we have the unqualified assurance that the operating costs are not a problem to the owners of residential air conditioning.

Just as a minor case in point, it is interesting to note that with all the wide variations in operating costs that are shown in the foregoing charts, none of these neighbors raised any issue over their operating costs with the installer or power company people.

So how should we handle the situation when the prospective purchaser asks about operating costs? Very much as we have been handling it in the past.

How To Handle Customer's Asking About Running Cost

Without attempting to classify even the more important methods of handling this situation that has developed, I would like to mention a few of them. One of the effective methods is to mention the operating costs of installations in the same area. The prospect sometimes registers that Mr. Schulte on Lamar St. estimates that it costs him less than so many dollars to operate his air conditioning for the summer season—but, perhaps more often, he registers the thought that "If Schulte does not find the expense a burden, neither will I."

Another frequently used approach is to mention the costs of operation per hour. This can be quite accurately stated and is usually the type of figure that serves as an excellent springboard for introducing the thought that the savings that occur as a result of having air conditioning are frequently greater than the cost of operation.

In many areas, it is possible to handle the question with a comparison to the heating costs. In all cases, the handling of the question can be made to serve as an introduction for stating some of the savings that are normally experienced through having air conditioning.

Another approach to the problem has been suggested in the use of an average figure of $100 per year for cooling and heating a house having approximately 1,200 sq. ft. of floor area. This type of statement underlines the desire on the part of the people to whom we sell the air conditioning for figures in terms of dollars rather than kilowatt hours or other engineering terms.

Naturally, reasonable figures have to be developed for each area since utility and fuel rates vary so considerably between communities. This type of general statement is frequently and effectively coupled with actual operating costs of installations in the prospect's own neighborhood.

'Cannot Expect To Have Accurate Figures'

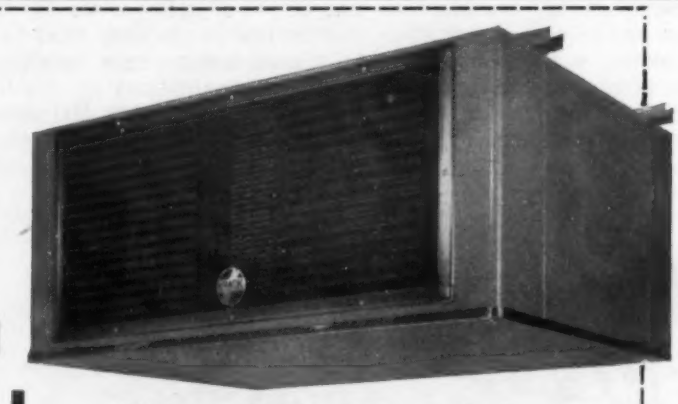
In summary, the present studies clearly show that there is such a wide variation in operating costs due to the way different people use their equipment that we cannot expect to have close and accurate figures of predicted operating costs. When we further examine the prospective purchaser's thinking when he asks about operating costs, we can see that the handling of this question is a sales challenge and a sales problem.

Properly handled, this question on the prospect's part can be turned into a further advance toward the goal of another good installation of residential air conditioning.

(To Be Reprinted)

Quiet

KRACK air conditioner mounts anywhere ceiling...floor...furred-in



Krack KOMFORT MASTER . . . the remote type, low-cost air conditioner that gives you a competitive bidding edge also cuts your installation costs.

Basic units, from 2 to 45 tons, can be mounted on ceiling or floor. Use units without cabinets for furred-in jobs. Complete coil selection for direct expansion, water, steam or combinations.

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Canadian Company To Make Duc-Pac Trunk, Stack Duct

EAST LONGMEADOW, Mass. Duc-Pac, Inc., manufacturer of prefabricated duct and fittings, has licensed the Aero Tool Works Ltd., Toronto, Ont., Can. to manufacture "Duc-Pac" trunk and stack duct.

Canada's largest manufacturer of oil burners, and an important producer of sump pumps and hot water heaters, Aero Tool Works is well equipped to produce Duc-Pac products for the Canadian market, said Russell Swett, president of Duc-Pac.

According to Swett, Aero is only licensed to make the heavier Duc-Pac units. The Duc-Pac plant in Massachusetts will supply the packaged fittings to Aero who will, in turn, distribute the complete Duc-Pac line to jobbers for resale to the Canadian trade.

It is understood that Duc-Pac plans to extend this licensing agreement in the near future to a limited number of strategically located manufacturers in the United States.

For more information about products advertised on this page use Information Center, page 54.

OF SPECIAL IMPORTANCE TO YOU:

AIR CONDITIONING "SHOW CASE" ISSUE

March 18

Including Specifications On 1957 Air Conditioners

Make sure the largest air conditioning dealer-contractor group in history sees your sales message in the Show Case Issue.

YOU DON'T HAVE MUCH TIME!

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Your advertisement in the March 18 issue of the NEWS is of special importance to you—so make sure it's forceful and prominent as only you can make it!

March 18 is the date of the special "Show Case" issue, which will be read—and re-read—by the largest air conditioning audience in history. Key air conditioning people from coast to coast and around the world will be watching for this issue. It will contain the most complete line-up of factual air conditioning information ever assembled.

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Manufacturers, distributors, contractors, and dealers alike will be receptive to your sales message in "Show Case." They'll be in a decision-making mood . . . a **buying** mood! Your advertisement will be seen again and again throughout the year because readers will keep "Show Case" handy for constant reference.

Advance requests for extra copies and orders from non-subscribers are already being received. Make sure your products are given the prominence and prestige they deserve—**start planning your display in "Show Case" right now!**

There will be no increase in rates for "Show Case"—closing date is March 8. Call your NEWS' representative today for a space reservation.

AIR CONDITIONING & REFRIGERATION **NEWS**

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Dial-Type Remote Bulb Thermometer Operates Automatic Warehouse Refrigeration System; No Need for Engineer

LOUISVILLE, Ky. — An entirely automatic refrigeration system, which conserves space and operating costs, has been installed in the Merchants Wholesale Grocery Co.'s new Louisville warehouse.

A dial-type remote-bulb temperature indicator mounted on the wall of the Frozen Food Div. manager's office allows him to operate the system without the need of an operating engineer. If the indicated cold room temperature varies beyond the desired operating range, the manager merely calls the contractor for service.

"Eliminating the need for a full-time maintenance engineer for our refrigeration system has meant a considerable cost savings," according to Norman P. Iler, vice president, Merchants Wholesale Grocery Co.

Heart of the refrigeration system is a set of six completely automatic low temperature "Krack" electric defrost unit coolers, explains George F. Spragens, the refrigeration engineer for the job. (Spragens, currently a partner in the firm of Neel & Spragens Placement Consultants, was with the York Louisville Co., contractor for the refrigeration equipment, at the time of installation.)

Have Front-Side Defrost Doors

"The ceiling-suspended coolers are equipped with front-side defrosting doors. This feature permits full utilization of the valuable storage area beneath the units and allows the electric lift trucks, used in this area, to store the product without the danger of blocking off the return air to the back of the units which is usually the case with other types of ceiling hung unit coolers," Spragens stated.

Included in the warehouse is a cold storage room 84 by 66 by 20 ft. (high) with an anteroom 28 by 20 by 20 ft. (high). Both of these rooms are maintained at 0° F. and are insulated with corkboard. Five of the Krack Koolers are used in the large storage room and one in the anteroom.

The electric defrost coolers, all model 36ED's, are manufactured by Refrigeration Appliances, Inc. Each unit contains two centrifugal blowers which are belt driven by an externally mounted motor. These blowers distribute the cold air completely across the 66-ft. wide room.

The unit coolers are connected to two 40-hp. Refrigerant-12 compressors. The compressors are controlled by remote-bulb thermostats which are wired in series with the holding coils in the compressor motor starters. The thermostats and electric controls for the entire system are centrally located on a common control panel outside the cold storage room.

Equipment Divided Into Two Systems

"The refrigeration equipment is divided into two identical systems," Spragens pointed out. "Each consists of one compressor and three of the unit coolers. The only equipment common to both systems is a single, natural draft cooling tower located on the roof above the compressors."

A dividing plate is welded into the center of the tower spray header so that one half of the spray nozzles are connected to each system's circulating pump. The water spray header has thus been altered to provide two separate circuits.

The tower sump is connected to an indoor stainless steel sump to prevent freezing during the winter months. Three-way motorized water valves permit the water to by-pass the spray nozzles and drain directly to the sump when the water temperature in the sump falls below the sump thermostat setting (approximately 75° to 80°).

The coolers eliminate defrosting problems, according to Spragens, by automatically defrosting periodically similar to modern household refrigerators.

Electric Heaters Give Defrost Heat

"Defrosting is accomplished through heat supplied by electric heaters. The cycle is started by a time clock located in the control panel which energizes an enclosed door control motor. This, in turn, closes the heavily-insulated and weather-stripped door of the unit. At the same time, a solenoid located in the refrigerant liquid line is closed, thereby stopping the refrigeration cycle," he explained.

When the unit door approaches the closed position, a mercury switch makes contact. This energizes the heater circuit. When the door is completely closed the defrosting cycle is in full operation with warm air being continuously recirculated within the unit by the centrifugal fans. A limit thermostat inside the cooler prevents overheating.

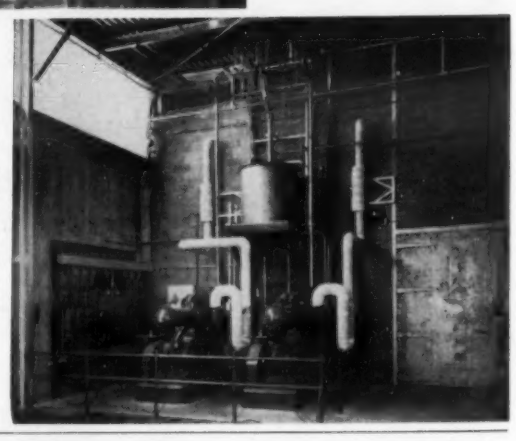
Install Air By-Pass Damper Doors

"To speed up defrosting of return bends on the coils, air by-pass damper doors have been provided," Spragens continued. "These damper doors remain open during the defrosting cycle and during refrigeration they are held closed by a spring mechanism.

"When the defrosting cycle is terminated, the timer once again energizes the door control motor which opens the door. The heaters are de-energized, the liquid line solenoid opens, and the refrigeration cycle is resumed.

"During the refrigeration cycle the air is drawn over the coil located in the bottom portion of the unit and is discharged at high velocities by the centrifugal blowers out of the top front portion. This top side, front air discharge, which is located directly above the defrosting door, insures maximum air throw."

THREE of the automatic "Krack Koolers" during the refrigeration cycle. Note front-side defrost doors in the open position. The open, unobstructed area beneath the coolers provides additional storage space.



HERE are the two 40-hp. compressors with common inside cooling tower sump. At left is the centrally located control panel. It houses the two time clocks which automatically start the defrosting cycle in the six "Krack Electric Defrost Unit Koolers."

Environmental Engineers To Meet In Chicago April 25-6

NEW YORK CITY—The annual technical meeting of the Institute of Environmental Engineers has been set for April 25-26 at the La Salle hotel, Chicago.

More information on the meeting may be obtained from the president of the IEE, Henry F. Sander, Vapor Heating Corp., 6420 W. Howard St., Chicago.

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As a pioneer designer and builder of commercial refrigerators, with more than 50 years of experience, Gloekler offers these important advantages:

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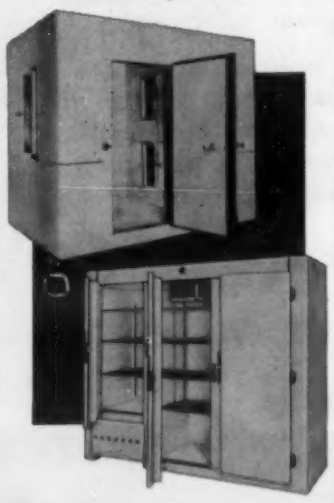

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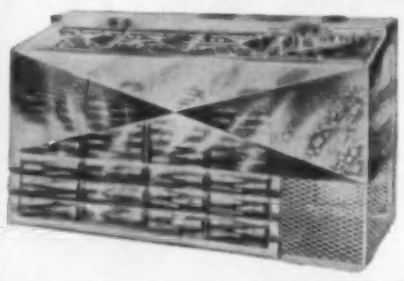

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Now KMP KAP-KIT gives servicemen a complete, tailored assembly for replacement in the field ... the proper size drier for the capillary. KMP KAP-KIT provides precision metering control for all refrigerants and has the drier in the proper location used by *all* leading manufacturers—*The LOW SIDE.* When drier is placed in refrigerated position at the end of the capillary, desiccant adsorbs *more* moisture and, more important, *retains* the moisture.

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U.S. Patents RE. 22,465 and 2,430,692

For more information about products advertised on this page use Information Center, page 54.

Men on the Move . . .

Acme Industries, Inc.—WALTER M. HASSENPLUG has been elected vice president, director of engineering. Previously he had served as engineering director.

Midwest Mfg. Corp., subsidiary of Admiral Corp.—GEORGE R. HEIDENBLUT was elected vice president-engineering for this firm which makes refrigerators, freezers, electric ranges, room air conditioners, and dehumidifiers. He formerly was engineering director for major appliances.

Worthington Corp. — GEORGE W. HARTWELL has been named chief engineer of commercial refrigeration equipment at Holyoke. Prior to this he served as chief engineer of open-type refrigeration compressor section.

HENRI SOUMERAI has been appointed chief engineer, refrigeration compressor development, Air Conditioning & Refrigeration Div. at Holyoke. He had been assistant chief engineer.

Bohn Aluminum & Brass Corp.—Appointment of DR. GERALD V. KINGSLEY as director of research has been announced. He replaces WILLIAM E. McCULLOUGH, retired. Dr. Kingsley was formerly chief metallurgist for the firm.

U. S. Air Conditioning Corp.—R. I. TANNER has been appointed manager of the Packaged Refrigeration Div. He has been in charge of packaged refrigeration sales in the eastern territory.

C. RICHMAN, who has been in charge of special projects, was elected vice president.

Norge Div., Borg-Warner Corp.—J. E. (DAN) DOUGHERTY has been promoted to national refrigerator sales manager. He has been handling special assignments working out of Chicago headquarters since last August.

Mitchell Mfg. Co., division of Cory Corp.—WALTER ZALE has been promoted to the newly-created post of advertising manager. He formerly was a member of the advertising staff. He will head the department now and work in conjunction with HOWARD HAAS, vice president of advertising and sales promotion.

Tuttle & Kift, Inc., subsidiary of Ferro Corp.—ROBERT P. KELLEY was appointed vice president-sales. He previously was a vice president of Motor Power Equipment Co., appliance distributor in St. Paul

BLAINE E. BECK has been named vice president-manufacturing. He was plant manager of the Electronic Components Dept., General Electric Corp.

Controls Co. of America—HARRY J. WELCH has been named advertising manager. He was formerly advertising manager of the firm's A-P Controls Div. He will handle general corporate advertising and coordinate advertising of the Soreng Products Div., A-P Controls Div., and Milwaukee Valve Co.

Crane Co.—MEYER EVANSON has been appointed coordinator of commercial heating. He has served as a plumbing and heating salesman.

Blower & Air Conditioning Div., Buffalo Forge Co.—Appointment of CHARLES W. LOCKHART as sales manager has been announced. He has been assistant sales manager of the division.

Heating & Air Conditioning Div., National-U. S. Radiator Corp.—DAYTON L. BERGMAN has been appointed branch manager of the firm's Kansas City, Mo. branch to succeed L. J. FINN, who is retiring. During the last year Bergman has served as sales manager of the Cincinnati office.

Commercial Products Div., O. A. Sutton Corp., Inc.—JAMES H. MONTGOMERY has been named district sales manager and will be responsible for merchandising and sales of Vornado residential systems in Chicago and surrounding areas. He was formerly midwest sales manager for United States Air Conditioning Co. Montgomery will cover Milwaukee, Peoria, Ill., Cleveland, Toledo, Detroit, and Grand Rapids, Mich.

Skuttle Mfg. Co.—HARRY HADLEY has been named district sales manager for the firm's southern territory. Hadley, who formerly covered the Ohio territory for the manufacturer of automatic dehumidifiers, "vapoglas" evaporator plates, and air filters will now direct sales in the entire area below the Mason and Dixon line across the country.

Sherer-Gillett Co.—HOWELL W. MURRAY, senior partner of A. G. Becker & Co., was elected a director.

Remington Corp.—JOHN R. LACASSE was elected treasurer. He served previously as assistant to the president of Automatic Brake Corp., eastern division controller of Lennox Industries, Inc., and assistant controller of Columbia Mills, Inc.

Haverly Equipment Div., John Wood Co.—CLAIRE U. HAVERLY, JR. has been named chief engineer, a promotion from his post as assistant to the vice president and general manager.

RUDOLPH FOSS has been upped to regional sales manager and will supervise sales of farm bulk milk coolers and other Haverly products throughout Pennsylvania and the midwest. Until recently he supervised New York state sales for another bulk milk cooler manufacturer.

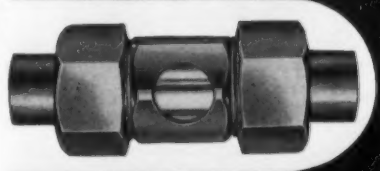
Permutit Co. — RICHARD S. CARRINGTON has joined the company as household sales division manager. He has served with Weston Electrical Instrument Corp., Singer Sewing Machines Co., Otarion Co., and Pitkin, Inc.

Cleaver-Brooks Co.—ALBERT J. ROSADO has been named export manager. He has been associated with Norcor Mfg. Co. in the export department.

Eureka Williams Corp.—LARRY NORDINE has been appointed western regional sales manager for the Williams Div. He will supervise sales for the firm's heating and cooling products in the middle and far west. He has been general sales manager for W. G. Best Homes, Inc.

Joske's of Texas (San Antonio)—EVAN MOON has retired as major appliance merchandise manager. He had been with the firm 21 years.

NEW unit SAVES TIME on the PRODUCTION LINE



"250" SERIES
LIQUID EYE®
POSITIVE SEALING INDICATORS

6 sizes now available: 3/8", 1/2", 5/8", 7/8", 1 1/8" and 1 3/8" O.D.S.

designed to save you even more time and money.

The new "250" has all the proved Liquid Eye advantages *plus* these newly engineered features:

- A completely, self-contained economy unit that's ready for immediate installation.
- smaller — more compact, simplified.
- designed to eliminate possible assembly errors.
- preformed copper extension eliminates need for separate gaskets — *foolproof* installation.

If you have a special problem, consult with Allin engineers. Custom units can be made to your exact specifications.

Write today for catalog covering the complete Allin line.

Allin
ALLIN MANUFACTURING CO.
410 N. Hermitage Ave. • Chicago 22, Illinois
Over 1,000,000 Liquid Eyes Sold to Date!

Your Invitation

From the
OFFICERS AND DIRECTORS
of the
WESTERN AIR CONDITIONING INDUSTRIES ASSOCIATION
to exhibit in the
WESTERN AIR CONDITIONING, HEATING, VENTILATING AND REFRIGERATION
Conference and Exhibit
SHRINE EXPOSITION HALL,
Los Angeles, May 4-8, 1957

A TRULY GREAT SHOW . . . THE TREMENDOUS SALES POTENTIAL IN THE COUNTRY'S MOST RAPIDLY EXPANDING MARKET . . . THE 11 WESTERN STATES . . . ASSURES ITS SUCCESS . . .

If you are a manufacturer or distributor of air conditioning, heating, ventilating or refrigeration equipment, parts or accessories, take advantage of the predictions of established business reports that "AIR CONDITIONING AND RELATED INDUSTRIES CAN EXPECT SHARP UPWARD TREND IN 1957."

A unique and far-reaching promotion and publicity campaign guarantees QUALITY attendance of potential customers.

Architects . . . contractors . . . engineers . . .
Those responsible for the successful operation of
Industrial Plants . . .
Retail Establishments . . .
Federal, State, Municipal or private office buildings . . .
Hotels and Motels . . .
Restaurants . . .
or other businesses who must meet the constant demands of competition with new or modernized equipment . . .
Individuals who are building or renovating their homes . . .

Will receive special invitations to see the most recent advances in YOUR industry . . .
FIVE BIG DAYS to sell your products and services in a one-stop, multi-sales call . . .
Plan now to exhibit in . . .

Western AIR CONDITIONING, HEATING, VENTILATING AND REFRIGERATION
Exhibit and Conference

For further information, contact: Fred J. Tabery, *Exhibit Manager*
3443 So. Hill Street, Los Angeles 7, California, *RIchmond 9-1091.*

Electric-Eye Smoke Control Warns of Contaminated Air Distribution

BERGENFIELD, N. J. — Along with the increasing use of air conditioning in large industrial and commercial structures, certain hazards have arisen in its operation, especially in congested areas such as department stores, schools, public buildings, and hospitals, it is pointed out by ESS Instrument Co. here.

"Air conditioning systems normally deliver clean, dehumidified cool air either for the comfort of persons within the premises or for the protection of delicate processes, materials, or instruments," the company notes.

"However, in operation, if the air conditioning system becomes contaminated, then deleterious materials may become discharged from the ducts and be expelled in congested areas.

"One of these substances is smoke, a known instigator of panic and mob hysteria. This is a principle safety hazard concern in public places where large numbers of people meet."

SMOKE SOURCES

The company says smoke within air conditioning systems can originate from any one of the following three major sources:

a. Drawn in with intake air from the outside.

b. Recirculation from fire or smoldering debris within the building.

c. Result from spontaneous combustion of collected matter within the filters.

"For many years the perils of smoke in congested areas has been of major concern to safety engineers and has resulted in strict city ordinances, throughout the country, which make it mandatory to provide automatic shut-off of air circulation should smoke be present in the air conditioning ducts," the company notes.

"These ordinances generally apply to buildings where people congregate. In many cases a total audience of 250 is the basis for the ordinance requirement.

"In addition to installations where automatic shut-off of air circulation is compulsory, most engineers who are charged with the responsibility for designing large structures include such equipment in their specifications.

"A good case-at-point is New York City which does not require, by law, automatic smoke controls. In most of our large modern buildings these electric-eye controls have been installed based on the recommendations and specifications of the design engineers.

"Among these are New York Coliseum which has more than 30 such 'electric-eye' watch dogs on its air conditioning ducts, and the United Nations building which uses over 60 units.

HOW SYSTEM WORKS

Fundamentally, the operation of an electric-eye smoke control system for air conditioning is simple, the company says.

"A suitable light source is mounted on one side of the duct and an indicator with phototube and accessory equipment mounted directly opposite. The indicator is provided with adjustments so that the amount of light cut-off by smoke can be accurately measured to any degree required.

"The electric-eye is also provided with a meter so that the exact degree of smoke passing within the duct can be seen at a glance. The instrument also has a warning light which may be set to trigger at any degree of smoke or dust when it reaches a maximum load.

"Also incorporated into the unit is a relay which is connected with the starting coil of the fan motor. Whenever the smoke or dust exceeds the set value, the motor control is cut off and the fan stopped, thereby automatically halting circulation within the ducts."

Two models of instruments (designed and manufactured by ESS Instrument Co.) have been installed in the Coliseum, United Nations building, White House, and many other office buildings, stores, and theaters throughout the country.

"Model A.C. 1 is a two piece unit incorporating the elements described above," the company explains. "It is usually mounted on the duct near the fan to minimize wiring and to cut installation costs. In many installations, a duplicate signal light is run to a control room or panel board so that a signal is given when the motor stops.

"In other cases engineers prefer the three piece system (A.C. 4) in which the indicator control may be mounted some distance from the pick-ups located in the ducts.

"These remote indicator controls are practical when there is no convenient duct location near the fan. In some cases locating the electric-eye near the exit of a long duct, rather than at the fan, gives faster response.

"These electric-eye smoke control units are fail-safe because the phototube receives and measures the light crossing the duct. Any loss of light caused by smoke or dust is instantly recorded and shows on the meter reading.

"A given amount of light must cross the duct and be registered on the meter in order to hold the control circuit in. Should a light burn out, dust collect on the lenses, an amplifying tube fail, or any component not function properly, the relay will immediately break the control circuit to the motor.

"The indicators are provided with two adjustments: a rheostat to control the amount of light and a sensitivity control to govern the response of the phototube to any specific amount of light.

"The only precaution to be taken is that a reasonably steady voltage be maintained since a sudden drop in voltage will have the same effect as a reduction of light caused by smoke, dust, or haze.

"If the voltage is unsteady, it can be overcome with an automatic voltage regulator which will maintain voltage within plus or minus 1%. This regulator is necessary in cases where elevators or other sudden loads cause voltage drops.

For
REFRIGERANTS { Hot Gas, Liquid, Suction
WATER { Hot, Chilled, Condenser

JE

SOLENOID VALVES
with "MULTI-VOLTAGE" coil
See us at BOOTH 235
13th International Exposition
Chicago — Feb. 25-Mar. 1st.
Controls Division JACKES-EVANS MANUFACTURING CO.
4427 Geraldine Ave. St. Louis 15, Missouri
50

Government Contracts

SYNOPSIS OF PROPOSED PROCUREMENT

ARMY

Corps of Engineers, Tullahoma Dist., P. O. Box 2091, Tullahoma, Tenn.
Completion of CONSTRUCTION and the INSTALLATION OF COOLERS Nos. 2 and 3 for the SUPERSONIC CIRCUIT OF THE PROPULSION WIND TUNNEL. This work involves installation of 144 Government-furnished heat exchanger bundles, weighing approx. 2,000 lbs. ea., together with fabrication, installation, and painting of associated piping, structural supports, fairings, and associated equipment. The bundles for Cooler No. 2 will be installed in a circular steel shell 56'3" long and 55' inside dia. The bundles for Cooler No. 3 will be installed in a circular steel shell 54' long and 55' inside dia. The shells will be furnished and installed by others. Government-furnished property consists of unfabricated steel plates, channels, beams, angles, washers, pipe, fittings, square head bolts and hex nuts, tubular insulators and washers, compressed asbestos gaskets, aluminum pipe and fittings, and fabricated heat exchanger bundles. The Government-furnished property, with the exception of the tube bundles, will not be sufficient to complete the work. Bet sets are avail—Job—Inv. No. ENG-40-126-57-22B—Bid Opening 16 April 57.

Purchasing and Contracting Division, Fort Carson, Colo.
REPLACEMENT OF BOILER TUBES in 12 buildings, Fort Carson, Colo.—Job—IFB 57-34—Bid Opening 7 March 57.

Chicago Procurement Office, Corps of Engineers, U. S. Army, 226 West Jackson Blvd., Chicago 6, Ill.
HEATER, DUCT TYPE, portable, Type H-1 complete, gasoline fuel, Spec. MIL-H-4607—98 ea.—IFB-57A-542-B—Bid Opening 14 March 57.

Purchasing & Contracting Division, Building T-533, Fort George G. Meade, Md.
REMOVAL OF EXISTING FURNACES AND INSTALLATION OF FORCED-WARM-AIR FURNACES in various buildings listed in bid schedule, to connect to existing circulating fan cabinets, duct systems and blowers: to furnish labor, materials and equipment and perform all operations required to complete work, ready for use as specified and as shown and detailed on applicable drawings—Job—IFB 18-102-57-78B—Bid sets available until 5 March 57—Bid Opening 15 March 57.

Purchasing and Contracting Office, Fort Jackson, S. C.
AIR CONDITIONING OF 3 CHAPEL BUILDINGS at Fort Jackson, S. C.—Job—IFB FJPUR 38-042-57-86—Bid Opening 15 March 57.

NAVY

District Public Works Office, Tenth Naval District, U. S. Naval Station, San Juan, Puerto Rico.
REPLACEMENT OF COLD DIFFUSERS AND REFRIGERANT PIPING (Cold Storage Bldg. #53)—U. S. Naval Station, Roosevelt Roads, Puerto Rico—Job—IFB NBY-1462—Bid Opening 5 March 57.

Officer In Charge, Navy Purchasing Office, 180 New Montgomery St., San Francisco, Calif.
FREEZER, CHEST TYPE, 12 cu. ft. Revco, Inc. and equal—50 ea.—IFB 220-6929-57-P2B—Bid Opening 4 March 57.

District Public Works Officer, Fourth Naval District, Building NR 1, Second Floor, U. S. Naval Base, Philadelphia, Pa.
REHABILITATE HEATING SYSTEM piping buildings nrs 75 and 76 Naval Air Material Center, Philadelphia, Pa.—Job—IFB 7165/56B—Bid Opening 5 March 57.

Officer In Charge, Navy Purchasing Office, 1200 S. Santee St., Los Angeles, Calif.
REFRIGERATORS, ELECTRIC, domestic type, 100 cu. ft. capacity. Spec. AA-R-211C Type 1—200 ea.—IFB 123-640-57—Bid Opening 19 March 57.

AIR FORCE

Purchasing and Contracting Office, Municipal Airport, Duluth, Minn.
CONSTRUCTION OF ADDITION AND INSTALL BOILER at Central Heating Plant at Finland, Minn.—Job—IFB 21-603-57-46B—Bid Opening 8 March 57.

GENERAL SERVICES ADMINISTRATION

General Services Administration Region 6, Business Service Center, 2306 E. Bannister Rd., Kansas City 14, Mo.
AIR CONDITIONING, Jury Room, Court House—Des Moines, Iowa—Job—IFB CR234—Bid Opening 3-5-'57.

General Services Administration, Region 2, Business Service Center, 250 Hudson St., New York 13, N. Y.
HEATING REPAIRS at F.O.B. (Vesey St.), 90 Church St., New York, N. Y.—Job—IFB 2PC-7-917(ADVT)—Bid Opening 3/8/57.

General Services Administration, Region 4, Business Service Center, 50 Seventh St., N.E., Atlanta 23, Ga.
AIR CONDITIONING JURY ROOMS, Atlanta, Ga. Post Office and Court House—Job—IFB CR4-1598—Bid Opening 3-5-57.

U. S. DEPARTMENT OF INTERIOR

Procurement Services Branch, Bureau of Reclamation, Sacramento, Calif.
FURNISH AND INSTALL ON GOVERNMENT-OWNED TRUCKS, SIX REFRIGERATED TANKS AND RELATED EQUIPMENT for use in hauling fish on Bureau of Reclamation's Central Valley Project. Trucks will be shipped to contractor's shop—Job—IFB 200-B-1739—Bid Opening 3-6-57.

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

National Advisory Committee for Aeronautics, Ames Aeronautical Laboratory, Moffett Field, Calif.
HEAT EXCHANGER, services and materials design and fabrication shell and tube type Air After-Cooler, 18,000 c.f.m. Air at 35 PSIA from 361° F. to 120° F. Water at 80° F.—Job—IFB A-17225—Bid Opening 3-1-57.

SURPLUS PROPERTY SALES

Naval Supply Depot, U. S. Navy, Mechanicsburg, Pa. Lt. J. I. Keenan, Disposal Officer, Phone Poplar 6-4751, Ext. 325.
Ventilating Fans and Spares—Total Estimated Acquisition Cost $1,312,681—Invitation No. B-31-57-407—Bid Opening 6 March 57—Sealed Bid, Location above.

See us in
BOOTH 229
INTERNATIONAL
AMPHITHEATER

If you specify, buy or sell Air Conditioning you will be interested in Borg-Warner's

KOOLSHADE® Sunscreen

Learn how you can take Old Sol out of the Air Conditioning picture.

REFLECTAL CORPORATION A subsidiary of Borg-Warner Corp.
310 South Michigan Avenue, Chicago 4, Illinois

FREE VALUABLE HEAT LOAD CALCULATOR for handy estimating of sun positions, heat gains and shading data.

7276

1,000 To Attend EEI '57 Sales Conference In Chicago April 1-4

NEW YORK CITY—The 23rd annual sales conference of the Edison Electric Institute will be held at the Edgewater Beach hotel, Chicago, April 1-4, it has been announced by T. O. McQuiston, chairman of the EEI Commercial Div. Executive Committee and vice president of Metropolitan Edison Co.

Over 1,000 top level sales executives of the electrical industry will attend the conference, highlights of which will come on Wednesday, April 3 and Thursday, April 4 when the general sessions will be held. These sessions consist of speeches by some of the electrical industry's outstanding personalities, as well as those in allied fields.

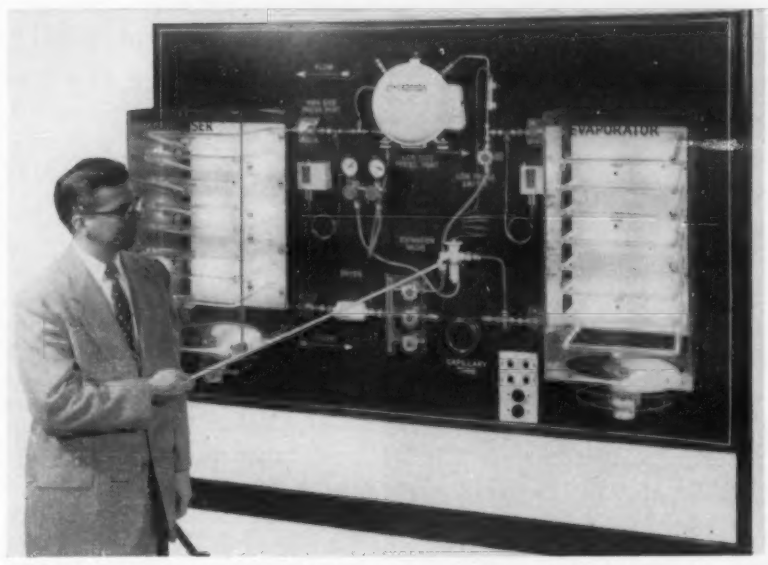
The conference will open on Monday, April 1 with meetings of the 22 EEI Commercial Div. committees. On Tuesday, April 2 the four groups of the institute—commercial, farm, industrial, and residential—will hold their group meetings.

The general awards luncheon will be held on Wednesday noon, April 3. The annual prize awards will be given at that time to the winners of the awards contests, held to honor outstanding promotional activities by electrical utilities.

Other events at the conference will include a farm luncheon on Tuesday noon, and a general luncheon on Thursday, April 4, featuring a "Live Better . . . Electrically" program.

Declares Dividend

TORONTO, Ont., Can. — The board of directors of Controls Co. of America, Schiller Park, Ill. recently declared a quarterly dividend of 18.75 cents per share on the common stock of the company, payable April 1, 1957, to stockholders of record at the close of business on March 1, 1957.



SENIOR field engineer for Janitrol, Robert Mees, points to the spot where the cooling cycle begins in this model air conditioning system. Designed and constructed by Mees for training purposes, the display shows two principal operations in a summer air conditioning system—evaporation and condensation of the refrigerant. Another manufacturer has asked permission to duplicate the training tool in its school.

Janitrol Service Schools Offer Work On Complete Conditioning System Models

COLUMBUS, Ohio—The heating and cooling service schools conducted by the Janitrol Heating & Air Conditioning Div., Surface Combustion Corp., are now underway, and will continue into May.

These week-long schools are not limited solely to employes of Janitrol dealers, but may be attended by others who are interested in field service work. However, each school is limited to 24 people, with registration on a first come, first served basis.

Dates for future cooling schools are the weeks of March 4, March 18, March 25, April 8, April 29, and May 13. Future heating schools will be held March 11, April 1, April 15, and May 6.

Part of the instruction includes working with operating models of complete systems. Special training devices are also used, including what is claimed to be the first refrigeration cycle with the complete refrigerant circle—both evaporator and condenser—made of glass.

General program for the cooling school is outlined in the following:

Monday: Outline of course—and air conditioning fundamentals.

Tuesday, Wednesday, and Thursday: Class lectures, group work on Janitrol equipment, and cooling tower. Purging and charging of air-cooled systems and trouble shooting of both water and air-cooled units.

Friday: Equipment application — job surveys — operating cost—cost estimating and pricing.

General program for the heating schools is as follows:

Monday: Outline of course, fuels, combustion principles, venting, controls, gravity furnaces.

Tuesday, Wednesday, and Thursday: Construction, installation, cycle of operation, maintenance, adjustment, and trouble shooting of Janitrol gas-fired heating equipment.

Friday: Construction, installation, cycle of operation, maintenance, adjustment, and trouble shooting of Janitrol oil-fired heating equipment.

Buffalo Forge To Expand Operations In New Plant

BUFFALO — Buffalo Forge Co. announced the purchase of the three-story plant at Sycamore and Mortimer Sts., formerly occupied by Cooper Paper Box Corp.

The acquisition of the plant will enable Buffalo Forge to expand its manufacturing.

"In view of our large backlog, the additional manufacturing space is a virtual necessity," said Executive Vice President William R. Heath. "It will permit us to book additional orders and cut our delivery schedules during the remainder of 1957."

The building gives Buffalo Forge an additional 30,000 sq. ft. of manufacturing space, plus more storage space.

Heath said the newly-acquired building will be used for light manufacturing and assembling some of the company's machine tools, blowers, and air conditioning equipment. "Sales of these products are high."

Trapped But Lives

ALBIA, Iowa—Kim Thomas, 3, spent 15 frightening minutes inside an electric refrigerator recently before his mother found him.

Wholesaler Gala Welcomes Taking Westinghouse Line

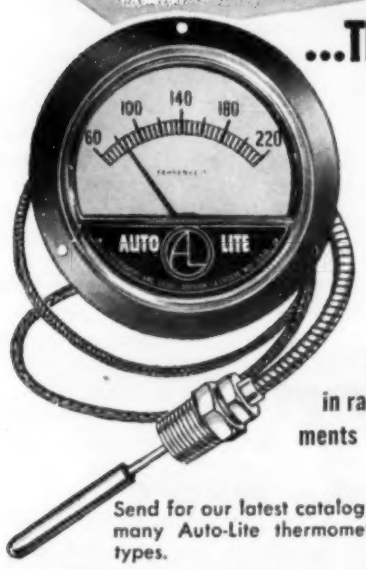
HOUSTON, Texas — Top executives representing the different consumer products divisions of Westinghouse Electric Corp. attended the gala introduction of the firm's full lines here by Reader's Wholesale Distributor, Inc., to more than 800 local dealers on a recent Sunday.

The Reader organization, whose franchise became effective as of Jan. 1, 1957, will represent Westinghouse in the Houston area in the distribution of television and radio receivers, major appliances, portable appliances, and refrigeration specialties. Reader replaced a Westinghouse Electric Supply Co. (WESCO) branch.

Has Advisory Panel

PHILADELPHIA — Fourteen Philco Corp. distributors attended the Jan. 30-31 panel sessions here, including seven who attended the first last summer.

AUTO-LITE



...TEMPERATURE INDICATION

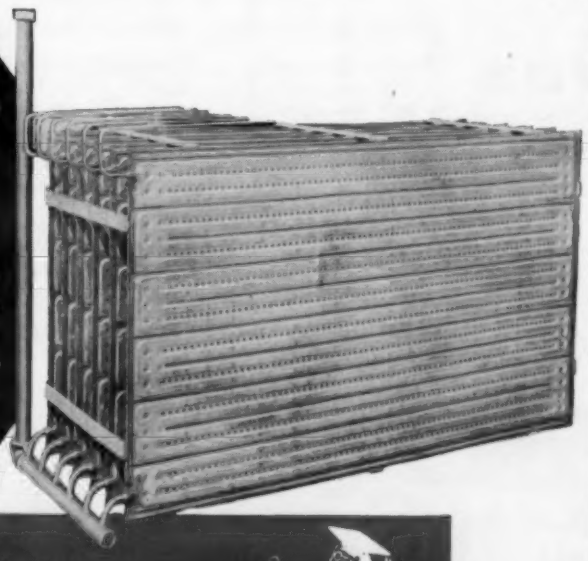
Original equipment manufacturers may choose from a complete line of Auto-Lite dial thermometer types, in ranges to meet the requirements of specific applications.

Send for our latest catalog describing the many Auto-Lite thermometer styles and types.

THE ELECTRIC AUTO-LITE COMPANY
Instrument and Gauge Division
Toledo 1, Ohio
New York • Chicago • Sarnia, Ontario

TEMPERATURE INDICATORS & RECORDERS

DEAN
COLD PLATES
for Ice Bank Air Conditioning
MANY SHAPES • MANY SIZES • MANY METALS
"JOB-TAILORED"
to your exact requirements, Dean Cold Plates are low in first cost and in operating cost. Our engineering department will be glad to cooperate in working out your particular problem.



Write for catalog and technical data.

DEAN PRODUCTS, INC.
1042 DEAN STREET, BROOKLYN 38, N.Y., STerling 9-5400

Choice territories now available for sales representation. Inquiries invited.

MARCH

CONDENSATE PUMPS

- COMPACT — FIT INSIDE ANY A.C. OR REFRIGERATION UNIT
- FIT EQUIPMENT OTHER PUMPS CANNOT HANDLE

Specially designed to conquer air lock. Assure automatic and positive priming over long distances and high lifts . . . through patent-applied-for features. Only a fraction of the cost of gravity lines. In-pan or out-of-pan mounting, all inside unit. Thermal protected. Year warranty. Complete line.

FLOAT-O-MATIC MODELS — (left) in-pan or out-pan automatic float control. A-F has vertical lift up to 6 feet, horizontal to 200 feet. B-F, vertical lift up to 9 feet, horizontal to 300 feet.

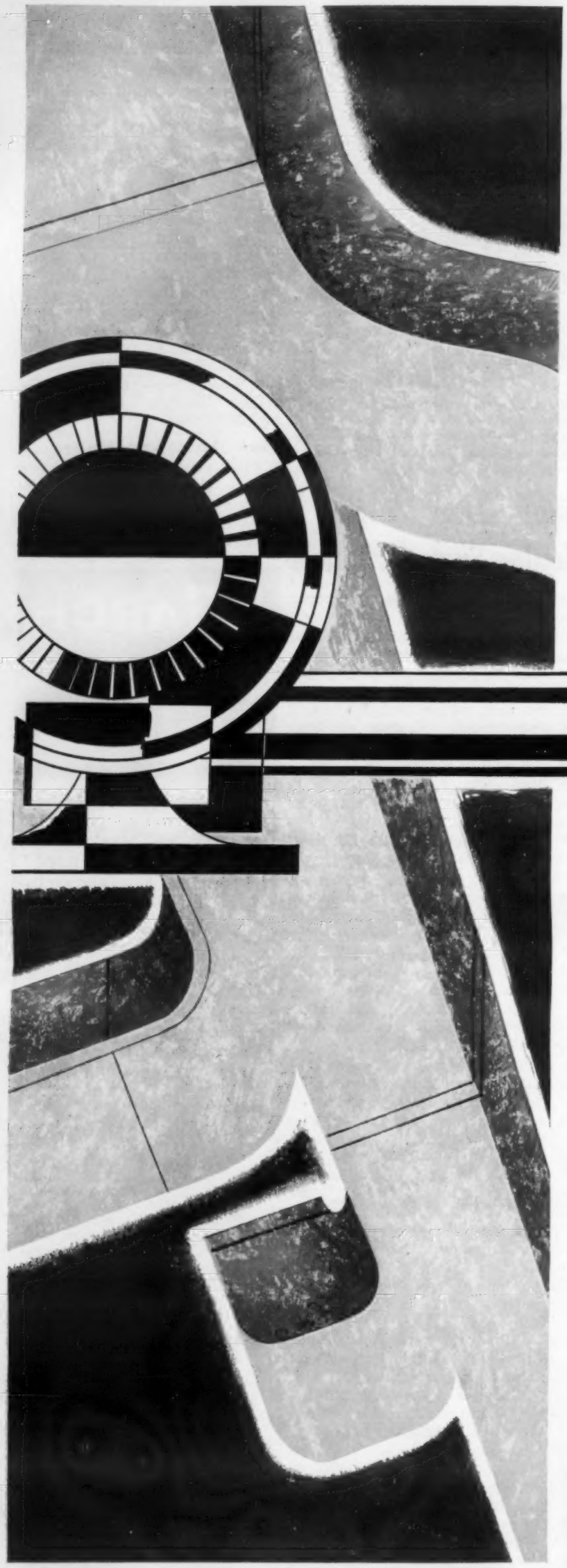
UNIVERS-L-MOUNT OUT-OF-PAN MODELS—A-S lifts 6 feet, handles 200 feet horizontal runs. B-S lifts 9 feet with runs of 300 feet. Cycle with A.C. controls. Mounts below drip pan.

Also standard in-pan units. Write for data.

MARCH MANUFACTURING CO., INC.
8019 NORTH LAWNDALE
SKOKIE, ILLINOIS

OUTSTANDING PERFORMANCE EXCLUSIVE DESIGN

For more information about products advertised on this page use Information Center, page 54.



Look For New

Once-A-Month

Heating Section

In the March 4 Issue of the NEWS

Air conditioning and refrigeration people are doing more and more heating work. Heating people are getting into air conditioning. And the term, as well as the function, of "air conditioning" is coming into its own as treatment of air "so as to control its temperature, humidity, cleanliness, and distribution—."

The new once-a-month Heating Section concentrates and dramatizes news and feature articles on all aspects of heating. Editorially, the NEWS provides a comprehensive view of *what's going on in heating.*

In addition to the Heating Section, all weekly issues carry timely news of the field. Hence weekly heating news coverage continues as an exclusive service of AIR CONDITIONING & REFRIGERATION NEWS.

Heating manufacturers are invited to take advantage of this new force in the business. Act now! Plan your advertising for this new Heating Section — get maximum reader interest.

AIR CONDITIONING & REFRIGERATION **NEWS**

The Newspaper of the Industry

The newspaper that carries more advertising by far than any other publication in the field.

450 WEST FORT STREET
DETROIT 26, MICHIGAN

- **NEW YORK,** 521 FIFTH AVE., MURRAY HILL 2-1928-9, ROBERT M. PRICE.
- **CHICAGO,** 134 S. LA SALLE ST., FRANKLIN 2-8093, AL SCHILDHAMMER.
- **LOS ANGELES,** 4710 CRENSHAW BLVD., AXMINSTER 2-9501, JUSTIN HANNON.
- **DETROIT,** 450 WEST FORT ST., WOODWARD 2-0924, J. B. SULLIVAN.

Many 'Firsts' To Be At Show--

(Concluded from Page 1, Col. 3)

able blower that may be substituted without A.G.A. or U.L. testing, or watch the many ways a new type of fin coil can be rolled or bent into a dozen different designs.

Then for contrast, they can view in a "museum" exhibit an archaic farm "Icyball" freezer that was used before electricity came to the farm and a Great Lakes steamer fan that operates from the flame of a kerosene lamp.

NEW DEVELOPMENTS

Some of the other new developments that await their scrutiny include:

A clothes dryer incorporated into a forced-air furnace that uses "the world's only one-piece cast iron heat exchanger."

A "Comfort Curtain" system for heating and ventilating school classrooms that discharges air vertically from window sill height along the entire outside wall.

"Satisfabricated" air conditioning units designed to meet the capacity and particular dimensions of any project requiring packaged units.

A central vacuum cleaning system for the home.

A central control system which operates by sending "command impulses" over existing electrical circuits and requires no special wiring to transmit signals.

A new line of motor compressors for extra-low temperature commercial refrigeration applications.

A line of compressors for year-round central air conditioning featuring a detachable valve that permits more flexible assembly.

A combination air diffuser and lighting fixture that delivers air straight down into a room at a comfortable low velocity.

A centrifugal roof exhauster using a new method of vibration isolation incorporating stainless steel "U" springs.

AIR CIRCULATION ITEMS

A new year-round air conditioning system that provides continuous air circulation and anticipates temperature changes by providing warmed or chilled air at the same rate that gain or loss occurs in the building.

A new kind of muffler that deadens the whistling sound of the pressure valve in a high-velocity system, the rush of air in the duct, and the noise of the fan by means of a triple suppressor box.

"Soundmetal" partitioning panels for quieting machinery enclosures.

A spiral lockseam pipe duct for high velocity systems that can be made of lighter than ordinary gauge.

A combination baseboard-diffuser for cooling and heating. A compact baseboard formed with ¾ in. copper tubing with a new type of fin.

A line of condensate removal pumps designed for mounting inside the air conditioning unit casing.

A new low-to-the-floor high velocity induction cooling system for new all-glass buildings.

A new space dryer capable of maintaining humidities as low as 5% in 35,000 cu. ft. of space over a wide range of temperatures. It uses electrically regenerated drying agents.

A line of evaporative condensers and cooling towers offering either draw-through or blow-through type fan arrangements.

An electronic air cleaner that allows velocities of up to 600 f.p.m. and is, says the manufacturer, "almost into the cost range of the more expensive mechanical-type cleaning devices."

A new induced draft jet burner for direct-fired forced-air space heaters that is suited for gas, light oil, heavy oil, or combination gas/light oil firing. Combination models feature instant fuel changeover.

An extended baseboard diffuser with automatic pushbutton damper.

45-TON AIR-COOLED CONDENSER

A 45-ton packaged air-cooled condenser capable of delivering 31,500 c.f.m.

A new line of part-winding starting motors in 7½ to 200-hp. sizes for low inertia loads.

A new centrifugal refrigeration unit.

A tubular centrifugal fan combining compactness and quiet performance.

The "only" ampere rated control built in four sizes—20, 30, 35, and 50 amperes—to match single and polyphase starter requirements for current rated motors through 550 volts.

An electrostatic air cleaner that requires no sewer or water connection and does not generate ozone.

A "fashion" thermostat that can be painted so that it "disappears into the wall."

A flaring tool with automatic burnishing that will flare all nine sizes of tubing.

A new adhesive designed for attaching insulation to ductwork.

Fraser&Johnston Names Lord and Palmer In Sales

SAN FRANCISCO—Fraser & Johnston Co. has announced appointment of Lord & Palmer, Inc., to be the sales agency to handle furnace and air conditioning equipment in the Great Lakes and New England states.

E. A. Easton, general sales manager, said this large assignment of territory represents a departure from Fraser & Johnston's general policy because of the experienced Lord & Palmer organization available.

Easton said Lord & Palmer have resigned representation for Gibson Refrigerator Co., Div. of Hupp Corp., in order to give full attention to the Fraser & Johnston line.

Easton and other Fraser & Johnston staff members met with Lord & Palmer in Cincinnati on Feb. 19. An aggressive campaign was mapped out.

Lord & Palmer now have offices in Grand Rapids, Mich. Easton said their territory includes: Connecticut, District of Columbia, Illinois, Indiana, Iowa, Maine, Massachusetts, Michigan, New Hampshire, New York, Ohio, Pennsylvania, Rhode Island, and Vermont.

Papers, Symposiums To Highlight ASHAE Meeting Feb. 25-28

CHICAGO—The 63rd annual meeting of the American Society of Heating & Air Conditioning Engineers, being held at the Conrad Hilton hotel here Feb. 25-28, is featuring presentation of 13 papers and discussions at two symposiums, during sessions which will be held exclusively in the mornings.

Both the annual meeting and the exposition will attract the largest attendance in the history of the society, according to President John W. James.

Subjects of papers to be presented Monday morning, Feb. 25, are: "Study of Three Redwood Cooling Tower Packings," "Earth as Heat Source and Sink for Heat Pumps," and "From '36 to '56: Air Conditioning Comes of Age."

Programmed for the Tuesday morning session are papers on "Revised Winter Outside Design Temperatures," "Analysis of an Air Conditioning Thermal Circuit by an Electronic Differential Analyzer," "Pulsations In Residential Heating Equipment," and "The Dust Spot Method for Evaluating Air Cleaners." A symposium on dehumidification will also be held Tuesday.

On Wednesday morning, these subjects will be discussed: "Cold Wall Effects In a Ceiling-Panel-Heated Room," "Performance of Covered Hot Water Floor Panels, Part II—Room Conditions," and "Thermal Design of Warm Water Concrete Floor Panels." Also scheduled for Wednesday morning is a symposium on industrial ventilation.

Three papers will be presented Thursday morning. They will deal with "Outlet Characteristics That Affect Downthrow of Heated Air Jets," "Air Flow In Free Convection Over Heated Bodies," and "Radioactive Process Ventilation."

Introduction and installation of the 1957 officers will take place at the annual banquet on Wednesday evening in the grand ballroom of the Conrad Hilton. Also at that time the Past President's Award will be presented to John W. James and the society's F. Paul Anderson Medal will be given to M. K. Fahnestock, research professor of mechanical engineering at the University of Illinois.

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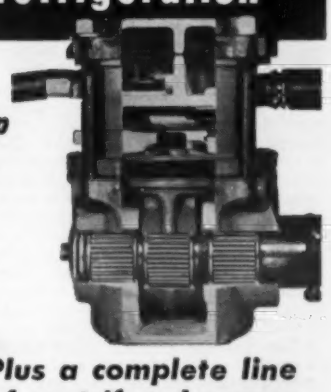

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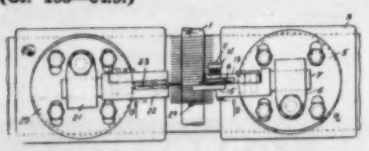
PATENTS

Week of October 16 (Continued)

2,766,773. VALVE STRUCTURE. Richard D. Grayson, La Canada, Calif., assignor to General Controls Co., Glendale, Calif., a corporation of Calif. Application Dec. 21, 1954, Serial No. 476,633. 19 Claims. (Cl. 137—630.22.)

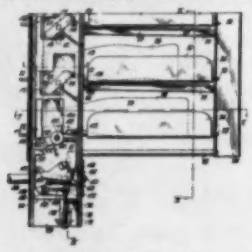
1. In a valve structure: means defining an elongated chamber having in communication with its opposite ends an inlet and a main outlet; a pair of valves arranged in series in said chamber so that fluid must pass through both of the valves from said inlet to said main outlet, one of the valve being adjacent the main-outlet end of the chamber and the other adjacent the inlet end; said chamber having intermediate said valves a restricted outlet through which fluid can pass when said one of the valves is closed and said other of the valves is open; means, movable gradually in response to variation of a controlling condition, for actuating the valves in such sequence, while said condition is varying in a given sense, that said one of the valves is closed before the other of the valves is closed, and means arranged so that, when said condition subsequently varies in an opposite sense, said one of the valves is partially opened before said other of the valves is opened.

2,766,805. APPARATUS FOR MAKING FINNED TUBING. Ernest Brueggeer, Massillon, Ohio, assignor to The Griscom Russell Co., New York, N. Y., a corporation of Delaware. Application Dec. 14, 1948, Serial No. 65,174. 3 Claims. (Cl. 153—64.5.)



1. An apparatus for making finned tubing wherein a tube is supported for relative axial and rotary movement with respect to a fin applying mechanism, said fin applying mechanism comprising a support spaced from the axis of the tube, a roller carried by said support with its periphery positioned at a distance from the axis of said tube approximately equal to the radius of the tube and the width of the fin to be applied whereby the roller engages the edge of the fin, a backing plate carried by said support and positioned to project between the fine engaged by said roller and the previously apply adjacent fin, and a second roller carried by said support in position to engage the wall of the tube on the side of the fin away from said backing plate, and means carried by said support for preventing lateral displacement of said tube during the finning operation.

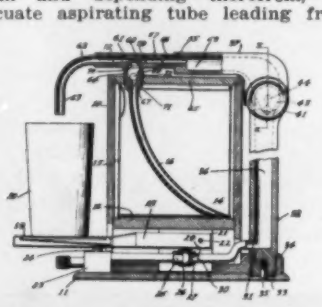
2,766,906. SELECTIVE BOTTLED BEVERAGE VENDING MACHINE. Floyd V. Bookout and L. Allan Shontz, Jr., Kansas City, Mo., and Boley A. Andrews, Kansas City, Kan., assignors to The Vendo Co., Kansas City, Mo.,



1. In a vending machine having a reciprocable captive mechanism, a releasable lock for holding said mechanism against movement in one direction, said lock including a bolt movable to and from a position within the path of travel of a portion of said mechanism; movable structure connected with the bolt for moving the bolt out of said position; a spring-loaded trigger shiftable into engagement with the bolt as the latter is moved out of said position for holding the bolt out of the path of travel of said portion of the mechanism; and means on the trigger within the path of travel of another portion of said mechanism for releasing the trigger relative to the bolt as the mechanism is moved in said one direction.

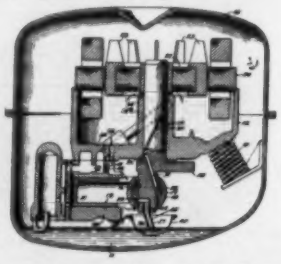
2,766,910. DISPENSER FOR CONCENTRATES. Carl C. Bauerlein, Mukwonago, Wis., assignor to The Dole Valve Co., Chicago, Ill.

2. In an apparatus for dispensing concentrates directly from a concentrate container, a casing adapted to receive and encase a concentrate container, a pivoted venturi member movable from a position out of registry with said casing into a position to extend along said casing, said venturi member having a venturi therein having a restricted throat and a vacuum chamber communicating therewith and depending therefrom, an arcuate aspirating tube leading from



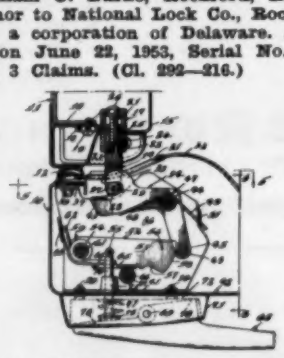
said vacuum chamber and formed on an arc struck from the axis of pivotal movement of said venturi member to move within the concentrate container upon downward movement of said venturi member, a valve controlling the passage of aspirating and diluting water into said venturi, a pressure line leading from said water valve to said venturi, and a check valve in said vacuum chamber, blocking diluting water from seeping into the concentrate container when said water valve is turned off.

2,766,929. COMPRESSOR AND LUBRICATING MEANS THEREOF. Edward W. Rusch, Greenville, and Kenneth P. Shank and Byrne A. Malone, Belding, Mich., assignors to Gibson Refrigerator Co., Greenville, Mich., a corporation of Michigan. Application Nov. 8, 1954, Serial No. 467,396. 6 Claims. (Cl. 230—206.)



1. In a compressor unit having a shell provided with a chamber adapted to support a fluid mixture in the lower portion thereof, a substantially vertical shaft rotatably mounted within said shell, an eccentric crank pin provided at the lower end of said shaft, said crank pin having an upwardly extending passage at the lower portion thereof and communicating with the lateral surface of said crank pin at a point laterally spaced from the axis of said shaft, said crank pin being provided at the lower portion thereof with a fluid pickup tube communicating with said upwardly extending passage, said pickup tube being inclined downwardly and outwardly and toward the vertical axis of said shaft and having a lower fluid intake portion substantially in alignment with the vertical axis of said shaft, said pickup tube having a substantially uniform cross sectional area along its length and having a lateral aperture in the wall of said tube above the oil level in said compressor and disposed toward the vertical axis of said shaft, whereby, upon rotation of said shaft and said eccentric crank pin, fluid mixture is drawn upwardly by centrifugal force into said inclined pickup tube, the denser components of said mixture passing through said tube into said upwardly extending passage and the lighter components of said fluid mixture being forced through said lateral aperture.

2,767,007. REFRIGERATOR LATCH. William O. Burke, Rockford, Ill., assignor to National Lock Co., Rockford, Ill., a corporation of Delaware. Application June 22, 1953, Serial No. 363,046. 3 Claims. (Cl. 292—216.)

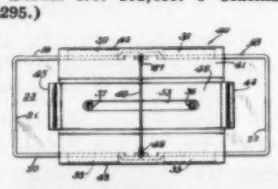


1. A refrigerator latch comprising a substantially U-shaped housing mounted in the door of the refrigerator, a latch bolt in the form of a bellcrank pivotally mounted in the housing and provided with a roller at the end of one arm and latching means at the end of the other, means for spring-biasing said latch bolt in one direction, a latch operating member pivotally mounted at one end in the housing and with its other end in contact with the roller on the latch bolt, means for spring-biasing said member in the same direction as the latch bolt, and spaced cam surfaces at said other end of the latch operating member maintained in contact with said roller, one of said cam surfaces providing a depression along one edge of said latch operating member for receiving and retaining the latch bolt in cocked position when the door is opened and the other on the end of said latch operating member for retaining the latch bolt in latched position when the door is closed, said spring-biasing means for said latch bolt and said latch operating member maintaining the roller on said latch bolt in engagement with a cam surface on said latch operating member with these engaging surfaces applying a constant closing pressure to the latch bolt.

2,767,011. REFRIGERATOR LATCH MECHANISM. Francis P. Buckley, Hartford, Conn. Application Aug. 30, 1954, Serial No. 452,867. 1 Claim. (Cl. 292—341.16.)

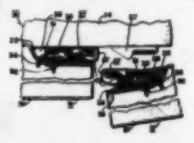
In an automatically operable latch mechanism, the improvement comprising a movable keeper which, when secured in one position, is held in position to be engaged by the latch mechanism but which, when not secured, is freely pivotable to a second position wherein it will not be engaged by the latch mechanism, a movable retaining pin engageable with the keeper to secure the same in said one position, automatically operable means adapted to engage said retaining pin with said keeper including a bellows connected to said pin, a spring biasing said bellows toward collapsed position to disengage the pin, a source of thermo-sensitive fluid in communication with the interior of said bellows, and heat generating means associated with said fluid source and connectible to a source of energy whereby to expand said bellows and to engage said pin at all times when said heat generating means is energized.

2,767,039. JUICE CAN STORAGE RECEPTACLE AND DISPENSER. Anthony J. Danna, Jr., Grosse Pointe, Mich., assignor, by mesne assignments, to Whirlpool-Seeger Corp., a corporation of Delaware. Application Dec. 16, 1953, Serial No. 398,460. 6 Claims. (Cl. 312—295.)



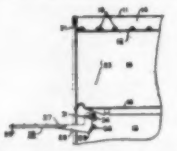
1. A combination storage and dispensing device comprising, a receptacle having one side thereof open, a cover member adapted for positioning over at least a portion of the opening of said receptacle, means slidably interconnecting said cover to said receptacle whereby said cover is slidably movable over the opening in said receptacle, resilient means normally disposed with respect to the slidable axis of said cover and including a U-shaped member having free ends positioned beneath the receptacle and a connecting loop portion overlying the cover interlocking said cover and said receptacle, and having said resilient means operatively effective for returning said cover to one position after it has been slidably displaced from that position to permit insertion or removal of an article into or out of said receptacle.

2,767,040. REFRIGERATING APPARATUS. Keith K. Kesling, Dayton, Ohio, assignor to General Motors Corp., Detroit, Mich., a corporation of Delaware. Application Feb. 15, 1954, Serial No. 410,350. 2 Claims. (Cl. 312—296.)



1. In combination, a cabinet having walls forming a compartment therein, one of said cabinet walls having an opening providing access to the interior of said compartment doors normally closing said compartment access opening, said doors having adjacent mating edges providing a joint exposed to the interior of said compartment and extending across the access opening intermediate opposed sides thereof, a gasket carried by at least one of said doors, said gasket having a portion about three sides of said one door adapted to abut said one cabinet wall and another portion adjacent the mating edge of said one door adapted to engage a part of the other of said doors, said another portion of said gasket including a mounting section, an integral flexible sealing section projecting from said mounting section and an integral resilient tongue section intermediate said mounting section and said sealing section thereof, means for securing said mounting section of said gasket to said one door, the projection of said tongue section being such as to cause the same to be compressed against the one door by said gasket mounting section securing means whereby to normally bias said gasket sealing section away from the mating edge of said one door, a substantially rigid member within the flexible sealing section of said gasket and having a part thereof located adjacent the base of said tongue section, said part of said member having an opening therein forming a hinge pin, a hinge butt secured to said one door and having an end thereof embracing said pin, said rigid member having its ends extending out of the sealing section of said another portion of said gasket, said ends of said rigid member being engageable with a part of said cabinet upon closing the doors to overcome the biasing effect of said tongue section of the gasket and move said flexible section thereof into engagement with a mating edge portion of said other door to seal the joint between said doors, and each of said doors being movable independently of the other to break the seal at said joint and open a portion of said compartment access opening.

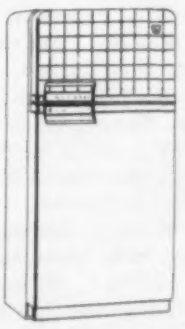
2,767,042. REFRIGERATING APPARATUS. Keith K. Kesling, Dayton, Ohio, assignor to General Motors Corp., Detroit, Mich., a corporation of Delaware. Application March 18, 1953, Serial No. 343,145. 1 Claim. (Cl. 312—313.)



A refrigerator cabinet of the vertically elongated home freezer type including an insulated chamber provided with a front access opening, a door normally closing said chamber access opening, a plurality of vertically spaced apart supporting surfaces in the chamber dividing same into superimposed compartments adapted to receive and support packages of frozen food in stacked one upon another relation on the supporting surface thereof, a substantially flat member associated with the front of one of said supporting surfaces, said member extending substantially across said chamber and terminating in the vicinity of the supporting surface next above said one supporting surface, means for pivotally mounting said member within said chamber for vertical swinging movement, said mounting means comprising hinge pins separate from and independent of said one supporting surface and said member, said hinge pins being stationarily secured to opposed side walls of said chamber below said one supporting surface, each of said hinge pins including a head having vertically disposed flat walled sides, said mounting means also comprising legs on said member, the outer end portion of each leg on said member having a keyhole shaped opening therein, said keyhole shaped opening in the legs of said member fitting over the head of said hinge pins, the flat walled portions of said keyhole shaped opening in said legs normally engaging the flat walled sides of the head of said hinge pins to lock said member in an upright position intermediate said closed door and the stacked frozen packaged food on said one of said supporting surfaces to form a barrier therebetween, said barrier preventing packages of a stack thereof at the front of said one supporting surface from moving relative to other packages in said stack into engagement with said door, said member being liftable upwardly relative to said one supporting surface to release the flat walled portions of the keyhole shaped opening in said legs from the flat walled sides of the head on said hinge pins and to move the rounded part of the opening into registry therewith, said member thereafter being swingable outwardly of said chamber and downwardly around the front edge of said one supporting surface about said hinge pins when said door is opened, and means for stopping the downward swinging movement of said member to position same in substantially horizontal plane at the front of said one supporting surface whereby it provides a transfer ledge for receiving and supporting packages of frozen food during rearrangement thereof in the part of said chamber above said one surface, said stopping means comprising a stud stationarily secured to the cabinet below each of the opposed hinge pins for engagement by an edge of the legs on the member.

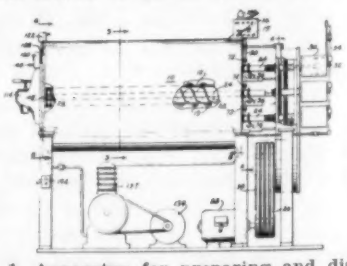
DESIGNS

178,976. REFRIGERATOR. Bertrand N. Trombley, Birmingham, Mich., assignor to Borg-Warner Corp., Chicago, Ill., a corporation of Illinois. Application February 13, 1956, Serial No. 40,154. Term of patent 14 years. (Cl. D67—3.)



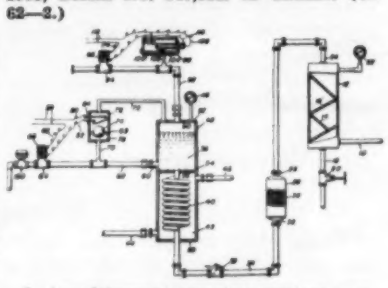
Week of October 23

2,767,553. AUTOMATIC MACHINE FOR PREPARING AND SERVING MULTIFLAVORED REFRIGERATED MIXTURES. Henry V. Lewis. Decatur, Ill. Application April 23, 1953, Serial No. 350,736. 12 Claims. (Cl. 62—2.)



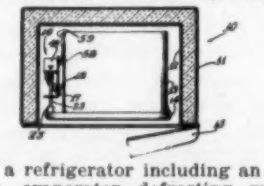
1. Apparatus for preparing and dispensing selected combinations of congealed creams or the like, comprising a housing, a plurality of individual congealing cylinders disposed in a parallel arrangement within said housing and extending substantially from end to end thereof, a plurality of pre-cooling reservoirs for liquid mixes to be congealed in said cylinders, conduits connecting said respective reservoirs with said respective cylinders, a valve and a pneumatic injector in each of said conduits, a combined rotary and reciprocable agitator and impeller disposed in each of said cylinders, power means for reciprocating said impellers, a pressure relief device on the outlet end of each of said impellers, an outlet manifold having passages connecting said respective cylinders to a common discharge throttle, individual selecting valves controlling said passages, said throttle providing a plurality of separate passages from said cylinders to a discharge orifice, a plurality of individual switches each operable to prepare a circuit for the corresponding selecting valve to open the same only during movement of the corresponding impeller toward the manifold and to prepare a circuit for the corresponding injector to open the same only during movement of the corresponding impeller away from the manifold, and switch means operable by each impeller for completing the prepared circuits in timed relation to the movements of said impeller.

2,767,554. PURGING SYSTEM FOR REFRIGERANT. David W. Ormes, Detroit, Mich. Application April 10, 1953, Serial No. 347,888. 12 Claims. (Cl. 62—2.)



1. A refrigerant purging system comprising an oil collecting chamber, a desiccant containing chamber and a gas separating chamber, a pressure responsive valve connected adjacent the top of said separating chamber, said valve operating in response to a predetermined pressure in said separator to vent said separator, a liquid level responsive valve connected to said separator, said chambers being interconnected in series relation.

2,767,555. FROST BANK AUTOMATIC DEFROST ACTUATOR. Rountree Wickliffe Wood, Jr., Evansville, Ind., assignor, by mesne assignments, to Whirlpool-Seeger Corp., a corporation of Delaware. Application July 16, 1953, Serial No. 368,274. 7 Claims. (Cl. 62—2.)



1. In a refrigerator including an evaporator, evaporator defrosting means and means for controlling said evaporator defrosting means comprising: a bracket mounted upon said evaporator; a switch carried by said bracket; first and second members slidably mounted on said bracket; an actuating arm pivotally affixed to the said first member and slidably affixed to the said second member, and having an end portion of said arm disposed adjacent said switch; resilient means reactive on said first and second members for urging said actuating arm out of engagement with said switch; said arm being manually rotatable into position such that the end portion thereof engages said switch and initiates operation of said defrosting means.

2,767,557. SEMI-AUTOMATIC ICE MAKER. Earl P. Hubacker, Erie, Pa., assignor to General Electric Co., a corporation of New York. Application Oct. 29, 1953, Serial No. 390,695. 11 Claims. (Cl. 62—106.)

In combination a freezing chamber having at least one opening thereinto, a door pivotally mounted on said

(Continued on next page)

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PATENTS

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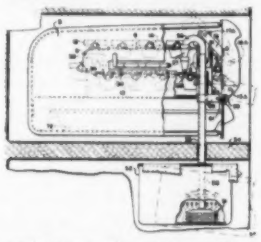
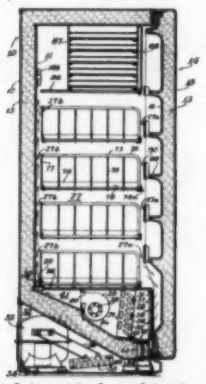
chamber and adapted to close said opening, an endless element adapted to pass through said chamber, a plurality of ice forming containers carried by said element, and means for filling



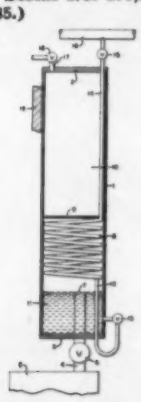
said containers at one position along the travel of said element comprising a water reservoir, a pumping means including a bellows having an inlet connected to said reservoir and an outlet emptying above said one position, and mechanical linkage means connected to and operated by movement of said door for mechanically actuating said pumping means to fill the bellows when said door is opened and to fill said containers at said one position when said door is closed.

2,767,558. AIR BLAST REFRIGERATED CABINET. Ralph E. Wallenbrock and John S. Palmer, Evansville, Ind., assignors, by mesne assignments, to Whirlpool-Seeger Corp., a corporation of Delaware. Application March 30, 1955, Serial No. 497,977. 15 Claims. (Cl. 62—117.25.)



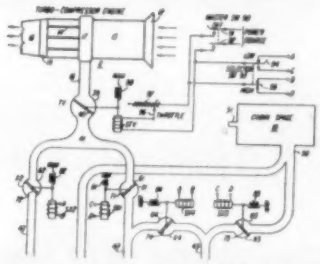
1. A refrigerated cabinet, comprising: spaced apart inner and outer shells fashioned to define a plurality of compartments having an access opening in each; a clasure member hingedly mounted on the cabinet and arranged to cover said access openings; refrigeration apparatus operative for cooling the interior of the cabinet; said apparatus including an evaporator cooling element and air circulating means disposed in one of said compartments; a first air communicating means between said compartments; a plurality of separately fashioned food storage receptacles having a wall of each thereof imperforate and being disposed in vertically spaced relation in the other of said compartments; said receptacles being further arranged so that all their imperforate walls are vertically positioned and disposed in substantially the same plane to provide a baffle-like wall having horizontally extending openings therein; said baffle-like wall being spaced from said inner shell and cooperating therewith to form air duct means extending from said first air communicating means inwardly into the other of said compartments; and having said closure member spaced from the access opening of the said one compartment to provide a second air communicating means between said compartments which cooperates with said first air communicating means to effect the flow of air, forced by said air circulating means into intimate heat exchange relation with said evaporator cooling element, successively in a continuous circuit between and through each of said compartments.

2,767,559. PURGER FOR REFRIGERATION SYSTEM. Frank W. Knowles, Seattle, Wash. Application Feb. 6, 1952, Serial No. 270,148. 1 Claim. (Cl. 62—117.85.)



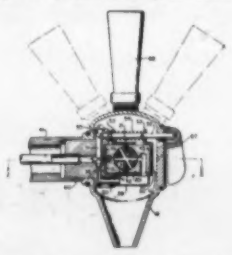
In a refrigeration system, a purger, comprising: a tubular shell having a height at least four times its width, and top and bottom end closures for said shell, an inlet pipe adapted to communicate with the receiver of such system and said shell and to extend into the interior of said shell above said bottom a distance substantially the width of said shell, the portion of said shell below said communication opening forming a condensate trap and said pipe acting as a supply line for the flow of a mixture of non-condensible gases and refrigerant vapors from said receiver, and acting as an overflow for said trap for the flow to said receiver of condensate counter to such mixture, a heat exchange coil in said shell above said inlet pipe, said coil having an inlet in communication with the interior of said shell below the top of said inlet pipe, an expansion valve in said heat exchange coil adjacent said inlet, said coil lying below the half height of said shell, a baffle above and adjacent said coil, the outlet of said coil adapted to be in communication with the low pressure side of said system, and a purge valve and line connected to and in communication with said shell thru the top of said shell.

2,767,562. CABIN PRESSURIZING AND REFRIGERATING SYSTEMS FOR AIRCRAFT. Russell S. Hall, Indianapolis, Ind., assignor to General Electric Co., a corporation of New York. Application Jan. 13, 1955, Serial No. 481,657. 11 Claims. (Cl. 62—136.)



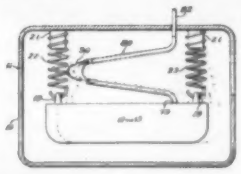
1. In a cabin pressurizing and refrigerating system for aircraft; the combination comprising a first duct communicating with said cabin, a second duct supplied with compressed gas, a first turbine and a first compressor operatively connected together, a second turbine and a second compressor operatively connected together, first and second coolers, means for supplying fresh air to the inlet of said first compressor, means connecting the outlet of said first compressor to the inlet of said first cooler, means connecting the outlet of said first cooler to the inlet of said second compressor, means connecting the outlet of said second compressor to the inlet of said second cooler, means connecting the outlet of said first turbine to the atmosphere, a controller selectively operative between first and second positions, means responsive to operation of said controller into its first position for connecting the outlet of said second cooler to the inlet of said second turbine and for connecting the outlet of said second turbine to said first duct and for connecting said second duct to the inlet of said first turbine, whereby said first turbine is driven by the compressed gas from said second duct and said second turbine is driven by the compressed fresh air from said second cooler effecting both expansion and further cooling thereof prior to delivery of said first duct, and means responsive to operation of said controllers into its second position for connecting the outlet of said second cooler directly to said first duct and for connecting said second duct to the inlet of said second turbine and for connecting the outlet of said second turbine to the inlet of said first turbine, whereby both of said turbines are driven by the compressed gas from said second duct and the compressed fresh air is delivered from said second cooler directly to said first duct.

2,767,737. GANG DISPENSING VALVE. Anthony Turak, Cleveland, Ohio. Application Oct. 8, 1952, Serial No. 313,626. 4 Claims. (Cl. 137—599.)



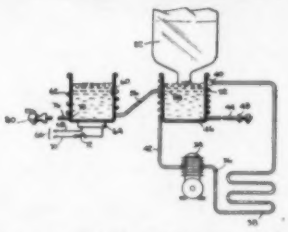
1. A gang faucet comprising a supporting base member, a seating surface on said base member, a first rigid valve body having first and second oppositely disposed side surfaces, a semi-cylindrical groove in the first side surface, said second side surface adapted to mate with said seating surface, fluid passageways extending from the second side to said groove, a second rigid valve body having first and second oppositely disposed side surfaces, a semi-cylindrical groove in the first side surface of said second valve body, fluid passageways from the groove in the second valve body to the exterior thereof to a common mixing area, a cylindrical valve member engaged in said semi-cylindrical grooves of the first and second valve bodies, said cylindrical valve member having fluid passageway means with entrance ends angularly spaced along the surface of the valve member in a predetermined pattern for interconnecting a selected number of said passageways of the first and second valve bodies dependent upon the rotative position of the valve member, said seating surface of said base member having fluid supply nozzles projecting therefrom spaced to register with the fluid passageways of the first valve body, and holding means to press the first and second valve bodies with the valve member therebetween together as a unit toward said supporting base member, said holding means impinging said first valve body upon said supply nozzles and maintaining substantially equal the pressure of said valve member on each of said valve bodies and the pressure of said first valve body on said seating surface.

2,767,903. REFRIGERATOR COMPRESSOR. Milton Y. Warner, Evansville, Ind., assignor, by mesne assignments, to Whirlpool-Seeger Corp., a corporation of Delaware. Original application July 16, 1953, Serial No. 368,293. Divided and this application Dec. 1, 1954, Serial No. 479,802. 3 Claims. (Cl. 230—58.)



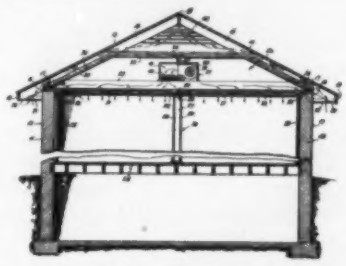
1. In a device of the class described, a casing fashioned with an opening therethrough, a motor-compressor unit having an outlet thereinto, means including at least one coiled spring resiliently suspending said motor-compressor unit within said casing, a length of tubing, one end of said length of tubing connected to the outlet of said motor-compressor unit, the other end of said length of tubing connected without said casing through the opening in said casing, said length of tubing being formed to have at least one complete loop within said casing, whereby said length of tubing does not substantially interfere with the resilient suspension of said motor-compressor unit, a snubber spring attached to said length of tubing between the ends thereof, said snubber spring further positioned to contact said coiled spring between the ends thereof, so that said length of tubing will not vibrate at a resonant frequency thereof other than the frequency of vibration of said motor-compressor unit when said motor-compressor unit vibrates relative to said casing.

2,767,960. APPARATUS FOR DISPENSING HEATED AND COOLED LIQUIDS. Abraham E. Fast. White Plains, N. Y. Application Feb. 10, 1955, Serial No. 487,360. 9 Claims. (Cl. 257—4.)



1. An apparatus of the character described comprising a casing, a cooling unit including an open top cooling can located within the casing, a heating unit including an open top heating can located within the casing at substantially the same level as the cooling can, heat insulation between said cans, electrically operable compression refrigeration means within the casing, said means including an expansion coil in contact with the cooling can, electrically operable resistance heating means in contact with the heating can, an aperture in top of the casing above the cooling can for reception of the shoulder of an inverted water flask, the top of the cooling can being located above the level of the mouth of the inverted flask, a connecting coil having an entry end in the cooling can below the level of the mouth of the inverted flask and an exit end at a high level in the heating can, a hot water spigot at the front wall of the casing, a cold water spigot at the front wall of the casing, conduit means connecting the cooling can with the cold water spigot, and conduit means connecting the heating can with the hot water spigot.

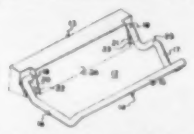
2,767,961. RADIANT HEATING AND AIR CONDITIONING SYSTEM. William H. Frankland, Tampa, Fla. Application Feb. 26, 1953, Serial No. 338,997. 8 Claims. (Cl. 257—8.)



1. In a building having rooms and an attic area extending thereover, a heating and air conditioning system comprising ceiling panel means substantially coextensive with each of said rooms forming a radiant heating panel therefor, plenum chamber means located in said attic area forming a unitary chamber substantially coextensive with the group of ceiling panel means for confining a body of air to be heated in surface contact with said ceiling panels, said ceiling panels constituting a lower wall of said plenum chamber means to be heated and cooled by direct thermal contact with the air in said plenum chamber, means affording communication of moisture-laden air from said rooms through the group of ceiling panel means to said plenum chamber for minimizing moisture condensation on said ceiling panel means, and air conditioning and heating means disposed in said plenum chamber means for heating and cooling the body of air therein, the temperature of said radiant heating ceiling panel and the heat radiated thereby into the room being determined by heat transfer between the body of air within said plenum chamber means and said ceiling panels.

2,768,048. BOTTLE RACK FOR REFRIGERATING APPARATUS. Frank A. Schumacher, Erie, Pa., assignor to General Electric Co., a corporation of New York. Application Dec. 21, 1953, Serial No. 399,386. 3 Claims. (Cl. 312—351.)

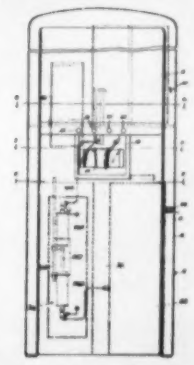
3. In a refrigerator having a rear and side walls defining a storage compartment a bottle rack comprising a generally U-shaped bail member having a bight portion and a pair of leg portions, and a base member affixed to one of said walls and including means engaging said legs to pivotally support said bail member, said means adapted to spring apart said leg portions from their normal position thereby to cause



spring pressure in said bail member effective to maintain said bail member in a raised position when placed therein, and stop means for supporting said bail member in a bottle engaging position wherein said bail member cooperates with said base member to form a cradle operative to support a bottle.

REISSUES

24,228. SELECTIVE BEVERAGE VENDING MACHINE. Ernest H. Thompson, Evanston, Ill., assignor to Automatic Canteen Co. of America, Chicago, Ill., a corporation of Delaware. Original No. 2,685,393, dated Aug. 3, 1954, Serial No. 744,194, April 26, 1947. Application for reissue June 20, 1956, Serial No. 592,701. 23 Claims. (Cl. 141—94.)



1. In a selective beverage vending machine, a plurality of containers each adapted to contain and have dispensed therefrom a quantity of at least one beverage ingredient in finely divided solid form, a mixing zone, a plurality of external controls, electric selective means operable in response to actuation of a selected control to dispense at least one of said beverage ingredients into said mixing zone, and means to forcibly spray a liquid into said mixing zone to thereby thoroughly agitate and mix with the ingredient therein and form a beverage.

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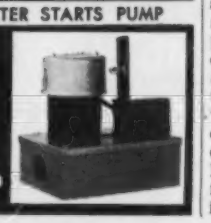

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DISTRICT SALES Manager—We need an aggressive, alert sales engineer who is thoroughly acquainted with commercial and industrial air conditioning and refrigeration equipment. The man selected would have as customers some of the industries largest companies and will be traveling throughout the Midwest. The position offers an excellent opportunity from a monetary stand-point plus the association with an organization that builds a quality line. Write giving full details of your background and experience to BOX A5741, Air Conditioning & Refrigeration News. All replies treated in confidence.

REFRIGERATION SALES engineer. Experienced on commercial and industrial systems. Excellent opportunity for qualified man to acquire interest in profitable business. Location: Chicago. Our employes know of this ad. BOX A5749, Air Conditioning & Refrigeration News.

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WANTED: MANUFACTURERS surplus, outdated or obsolete refrigeration items—expansion & water & shutoff valves, controls, relays, dehydrators, units, tubing fittings, etc. All sales on a cash close-out basis, large or small quantity. Write or call: COMMERCIAL CONTROLS CO., 257 East 3rd Street, New York 9, N. Y. ORegon 3-7210.

WANTED: NEW or used D.C. motors ¼ h.p. and 1 h.p. State price and quantity and voltages, and if used condition of motors. LAUDERDALE REFRIGERATION SERVICE, P.O. Box 1120, Fort Lauderdale, Florida.

EQUIPMENT FOR SALE

ARCTICAIRE AIR conditioning equipment 2, 3 and 5 ton packaged water chillers, air or water cooled. Direct expansion air conditioning systems 2, 3 and 5 ton, air or water cooled, self contained and remote types. Write for literature and prices. ARCCO, MANUFACTURERS AGENTS, INC., Merchandise Mart Bldg., 2201 Grand Avenue, Kansas City, Missouri.

NAME PLATES and numbered valve tags—Now available your free 1957 catalog showing most complete line of identification plates and tags for air conditioning and refrigeration use. Easy to affix. Low cost. Engineer and code approved. Free samples. Write SETON NAMEPLATE COMPANY, Dept. AC25, 431 West Rock Avenue, New Haven 15, Conn.

AIR CONDITIONING components consisting of new, inactive, and used air conditioning compressors, controls, water chillers, and other component parts for 2, 3, and 5 ton units suitable for residential air conditioning. BOX A5743, Air Conditioning & Refrigeration News.

MISCELLANEOUS

ATTENTION SERVICEMEN: Send for free circulars and bulletins on refrigeration parts and equipment. Real money saving values: WALTER W. STARR; 2833 Lincoln Avenue, Chicago 13, Illinois.

Sheet Metal Union--

(Concluded from Page 1, Col. 4)

employes of Burt's competitors, charged that the steel workers were infringing on their jurisdiction.

They claimed, and are still claiming, that its agreement with local contractors calls for installation of products made by union members. They interpret this to mean sheet metal union members.

Refuse To Install Burt Products

As a result, members of the sheet metal workers union have refused to install Burt products, causing the firm to lose tens of thousands of dollars worth of business.

At the AFL-CIO convention in Miami Beach, Fla. earlier this month, Meany had called for a speed-up in the merging of AFL and CIO unions, which admittedly has been lagging behind expectations.

Given Until August To Settle Merger

Meany gave the recalcitrant unions until next August to settle their merger problems between themselves. If they are not settled by then, they are to submit them to the executive council for solution before the end of the year.

At that meeting, Meany and the presidents of two "disinterested" AFL-CIO unions were named to a special committee to solve the Burt case. The committee visited the firm Feb. 18.

On leaving Akron, Meany indicated that the committee would meet in Washington, D. C. some time this week to decide the dispute. He expressed hope that the two unions involved might find their own solution before the committee met.

Committee's Decision Watched as Indicator

Although Meany asserted that the committee's decision in this case would set no precedent for solution to 14 similar cases currently pending, it will be watched as a possibly indicator to the path toward solution.

Meany pointed out that the committee's decision could be appealed to the national executive council and to the AFL-CIO convention next year.

The National Labor Relations Board has been called upon to deal with several cases of such jurisdictional disputes in the air conditioning industry within the past year.

Thorny Problem

One area that appears to be particularly thorny is whether installation of industrial air conditioning equipment should be done by employes of the contractor (generally AFL) or the plant maintenance men (generally CIO).

In a New Jersey case last summer, the AFL-CIO council decided in favor of the contractor's installation crew after work had been held up for more than a month.

To Condition Bldg.

ATLANTA—To be fully air conditioned throughout, construction was started in January on a $750,000, five-story office building here.

Am-Stan Plumbing Div. To Offer Management Program to Contractors

NEW YORK CITY—A new business management program is being offered to plumbing, heating, and air conditioning contractors by the Plumbing & Heating Div. of American-Standard.

Included in the program is a new motion picture entitled, "Your Witness," which points up many of the business management problems encountered by contractors.

The film covers such subjects as the keeping of adequate records, discounting of bills, product pricing, overhead control, and the maintenance of sufficient profit margins. A series of "witnesses" review these problems, always stressing the fact that industry assistance is available where needed.

Following the motion picture, aid to contractors will be extended by American-Standard in the form of "packaged" business management clinics, each one complete with plans, booklets, and other necessary working materials.

Subjects will include profit and overhead, credit and collections, use of records, instalment financing, truck inventory control, business organization, insurance problems, and legal problems.

Prints of the film will be made available through American-Standard sales offices for showings to local contractor meetings or meetings held by individual distributors for their customers.

The good business management clinics will be offered through local American-Standard representatives.

Wesco To Offer Service In San Francisco Area

SAN FRANCISCO—Westinghouse Electric Supply Co. will offer in-warranty major appliance servicing in the metropolitan bay area effective March 1, it was confirmed by Frank Porter, consumer products manager.

The firm's headquarters here will offer the service for San Francisco dealers and consumers. Leases were about to be signed for service headquarters in Oakland and on the peninsula, but Porter declined to give locations.

Wesco discontinued major appliance servicing in this area about five years ago. Resumption brings northern California policy in line with the service facilities offered by Wesco in the Los Angeles area, the company noted.

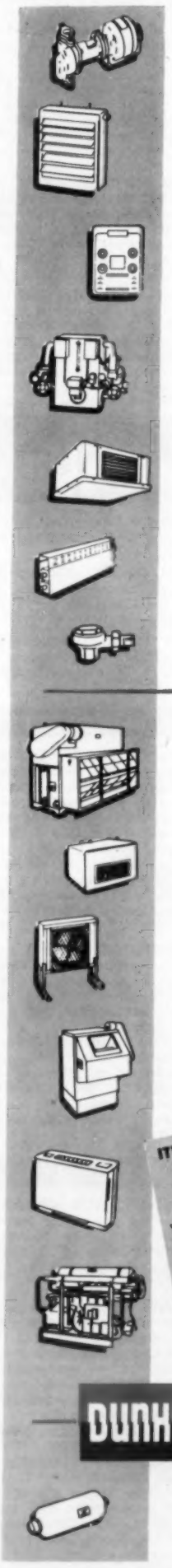
UsAirco Merger--

(Concluded from Page 1, Col. 4)

U. S. Air Conditioning manufactures packaged air conditioning equipment for home, commercial, and industrial use and related heating and ventilating products. Wholly and partially-owned subsidiaries produce domestic furnaces and gas-fired unit heaters.

Hughes-Keenan manufactures cranes for industrial and railroad use and light truck bodies. Plans call for its operation as a division of the merged company, to be called U. S. Air Conditioning Corp., the report continued.

In January of last year, U. S. Air Conditioning acquired Jordon Refrigerator Co. of Philadelphia. Last July, the parent company moved its headquarters here from Minneapolis, it was added.



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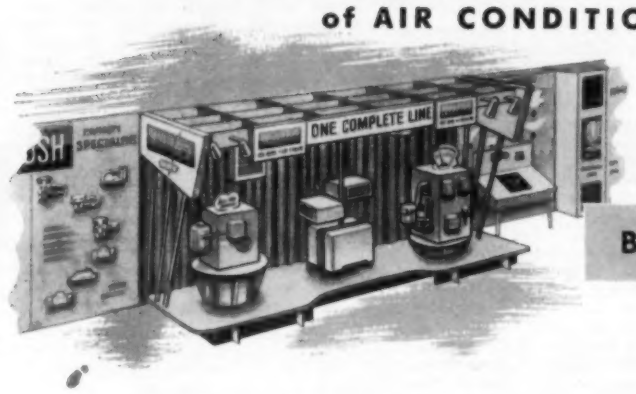

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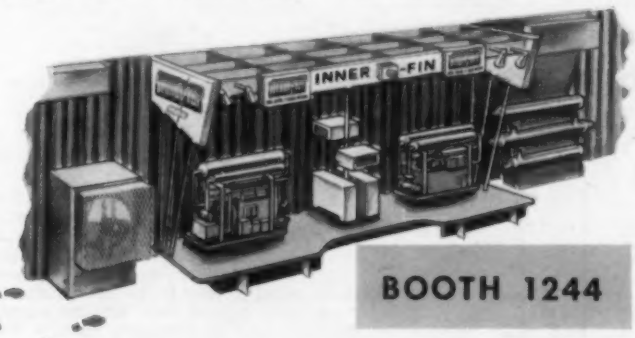

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